1 Description

The 82P338xx and 82P339xx are Synchronization Management Unit (SMU) providing tools to manage physical layer and packet based synchronous clocks for IEEE 1588/ PTP Telecom Profile applications. These SMUs support independent IEEE 1588 and Synchronous Ethernet (SyncE) timing paths for SONET / SDH / Synchronous Ethernet equipment, DWDM and Wireless base stations.

2 Programming Information

2.1 Timing Commander

The user is urged to obtain from their local IDT FAE the Timing Commander/Evaluation Board Users Guide, a copy of the IDT Timing Commander software and the appropriate Personality file (.tcp extension) to model the specific SMU. An initial Settings file (.tcs extension), which contains all register values, can be generated by the IDT SMU Applications group and the IDT FAE with user input to define the application.

The Timing Commander Personality (.tcp extension) allows the majority of the register settings of the device to be established without the requirement of consulting the register map directly. It also demonstrates that the devices that contain an APLL3, the 82P33931 and 82P33831, respond to two different I2C addresses. The DPLL, APLL1 and APLL2 all respond to I2C eight bit write addresses. The fourth write address is taken by APLL3. The 8-bit I2C address is xxxx[a2][a1][a0]0, where xxxx defaults to 1010 (h'A); [a0] must be '0' to access APLL3 and '1' to access the rest of the chip. A2, A6, AA, AE are the four address for DPLLs, APLL1 & APLL2. For all other devices, there can be 8 I2C addresses.

After the initial tcs file is generated, refinements to the register settings can be made on the evaluation board as the user becomes more familiar with the feature set of the part defined in the memory map. The evaluation board is also a useful debug tool to determine the expected behavior when register settings are changed.

2.2 Programming over the Slave Microprocessor Interface

The device supports I2C, SPI and UART modes. An I2C device driver is available and recommended to assist setting up the device.

These devices define the most significant four bits of the I2C base address, I2C_AD[6:3], as 0b1010. Of the remaining three bits, I2C_AD[2:0], I2C_AD[2:1] are defined by strapping pins on the part and are 0b00 by default. For 'x31 devices, I2C_AD0 = 1 and is defined internal to the part; there is no I2C_A0 strapping pin provided.

All register accesses are done as 8-bit bus cycles. The memory is structured as eight pages of 128 bytes each (with the exception of APLL3). The ten bit extended address, which locates any register in the memory map, requires that the three most significant bits to define the page be concatenated with the seven least significant bits of the offset address within the page. The 8 bit Slave address will then be the seven bit register offset address within the active page padded with a leading zero.

The three page bits are located in the single Page Register at the offset location set by the lower seven bits of 0x7F or equivalently at the extended address defined by the lower ten bits of 0x07F. This single page register can be accessed directly for reading or writing from any other page at offset address x7F, or equivalently, at the extended addresses x07F, x0FF, x17F, x1FF, x27F, x2FF, x37F and x3FF.

Said another way, the Page Register located in Page 0 is mapped into the offset address space of every other page at the offset address 0x7F. This means that regardless of the page currently selected, any bus transaction to offset address 0x7F always accesses the Page Register.

If access to a different page is required, a separate write to the Page Register is required. This makes the new page active and all subsequent reads and writes can be made anywhere within that page. It is recommended that the page pointer is set back to 0 once any contiguous set of transactions are completed.

After reset with no EEPROM load, all the registers are set to their default values. All DPLL and APLL3 registers are available to either read or write via the microprocessor slave interface. If the device is loaded from an EEPROM on the I2C Master bus, two things must be kept in mind. First, changes in the Page Register cannot be made by the EEPROM. The page register within each page then must mimic the required Page Register changes to step across the pages sequentially. That is, x07F = x01, x0FF = x02, x17F = x03, ..., x37F = x07. Second, APLL3 must still be programmed from the Slave bus because the SMU Master can only issue a single address on the master bus.

The access of the Multi-word Registers is different from that of the Single-worded Registers. Consider the register interrupt_mask_cnfg[31:0] on page 0 and spanning offset addresses x0B, x0C, x0D and x0E. The write operation for Muti-word Registers follows a fixed sequence. The register x0B is configured first and the register x0E is configured last. The four registers are configured continuously and should not be interrupted by any operation. The mask configuration will take effect after all four registers are configured. During read operation, the x0B is read first and the register x0E is read last.

Certain bit locations within the device register map are designated as Reserved. To ensure proper and predictable operation, bits designated as Reserved must be left with their default values. If using EEPROM, the bits designated as Reserved must be set with their default values.

3 DPLL Register Map

Table 1. Register Map

Address	Register (Abbrev)	Register Name
Global Control Registers		
0x00	id	Identification Register
0x01	mpu_sel_cnfg	MPU Selection Configuration Register
0x02	xo_freq_cnfg	XO Frequency Configuration Register
0x03	nominal_freq_cnfg[7:0]	Nominal Frequency Configuration Register [23:0]
0x04	nominal_freq_cnfg[15:8]	
0x05	nominal_freq_cnfg[23:16]	
0x06	interrupt_cnfg	Interrupt Configuration Register
0x07	interrupt_sts[7:0]	Interrupt Status Register [7:0]
0x08	interrupt_sts[15:8]	Interrupt Status Register [15:8]
0x09	interrupt_sts[23:16]	Interrupt Status Register [23:16]
0x0A	interrupt_sts[31:24]	Interrupt Status Register [31:24]
0x0B	interrupt_mask_cnfg[7:0]	Interrupt Mask Configuration Register [7:0]
0x0C	interrupt_mask_cnfg[15:8]	Interrupt Mask Configuration Register [15:8]
0x0D	interrupt_mask_cnfg[23:16]	Interrupt Mask Configuration Register [23:16]
0x0E	interrupt_mask_cnfg[31:24]	Interrupt Mask Configuration Register [31:24]
0x0F	i2c_slave_addr_cnfg	I2C Slave Address Configuration Register
Pre-Divider Registers		
0x11–0x12	in{1:2}_cnfg	Input {1:2} Configuration Register
0x13–0x1E	in{3:14}_cnfg	Input {3:14} Configuration Register
0x1F	hf_div_cnfg[7:0]	High Frequency Divider Configuration Register [7:0] for input {3:6}
0x20	hf_div_cnfg[11:8]	High Frequency Divider Configuration Register [11:8] for input {7:8}
0x21	in_pdn_cnfg	Input Power-Down Configuration Register for input {1:8}
0x2C	in3_fec_divp_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Numerator P Register [15:0]
0x2D	in3_fec_divp_cnfg[15:8] – Starting address	
0x2E	in3_fec_divq_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Denominator Q Register [15:0]
0x2F	in3_fec_divq_cnfg[15:8] – Starting address	
0x30	in3_pre_divn_cnfg[7:0] – Starting address	Input {3:14} Pre-divider Denominator N Register [14:0]
0x31	in3_pre_divn_cnfg[14:8] – Starting address	
0x32	in4_fec_divp_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Numerator P Register [15:0]
0x33	in4_fec_divp_cnfg[15:8] – Starting address	
0x34	in4_fec_divq_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Denominator Q Register [15:0]
0x35	in4_fec_divq_cnfg[15:8] – Starting address	

Table 1. Register Map (Cont.)

Address	Register (Abbrev)	Register Name
0x36	in4_pre_divn_cnfg[7:0] – Starting address	Input {3:14} Pre-divider Denominator N Register [14:0]
0x37	in4_pre_divn_cnfg[14:8] – Starting address	
0x38	in5_fec_divp_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Numerator P Register [15:0]
0x39	in5_fec_divp_cnfg[15:8] – Starting address	
0x3A	in5_fec_divq_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Denominator Q Register [15:0]
0x3B	in5_fec_divq_cnfg[15:8] – Starting address	
0x3C	in5_pre_divn_cnfg[7:0] – Starting address	Input {3:14} Pre-divider Denominator N Register [14:0]
0x3D	in5_pre_divn_cnfg[14:8] – Starting address	
0x3E	in6_fec_divp_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Numerator P Register [15:0]
0x3F	in6_fec_divp_cnfg[15:8] – Starting address	
0x40	in6_fec_divq_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Denominator Q Register [15:0]
0x41	in6_fec_divq_cnfg[15:8] – Starting address	
0x42	in6_pre_divn_cnfg[7:0] – Starting address	Input {3:14} Pre-divider Denominator N Register [14:0]
0x43	in6_pre_divn_cnfg[14:8] – Starting address	
0x44	in7_fec_divp_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Numerator P Register [15:0]
0x45	in7_fec_divp_cnfg[15:8] – Starting address	
0x46	in7_fec_divq_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Denominator Q Register [15:0]
0x47	in7_fec_divq_cnfg[15:8] – Starting address	
0x48	in7_pre_divn_cnfg[7:0] – Starting address	Input {3:14} Pre-divider Denominator N Register [14:0]
0x49	in7_pre_divn_cnfg[14:8] – Starting address	
0x4A	in8_fec_divp_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Numerator P Register [15:0]
0x4B	in8_fec_divp_cnfg[15:8] – Starting address	
0x4C	in8_fec_divq_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Denominator Q Register [15:0]
0x4D	in8_fec_divq_cnfg[15:8] – Starting address	
0x4E	in8_pre_divn_cnfg[7:0] – Starting address	Input {3:14} Pre-divider Denominator N Register [14:0]
0x4F	in8_pre_divn_cnfg[14:8] – Starting address	
0x50	in9_fec_divp_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Numerator P Register [15:0]
0x51	in9_fec_divp_cnfg[15:8] – Starting address	
0x52	in9_fec_divq_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Denominator Q Register [15:0]
0x53	in9_fec_divq_cnfg[15:8] – Starting address	
0x54	in9_pre_divn_cnfg[7:0] – Starting address	Input {3:14} Pre-divider Denominator N Register [14:0]
0x55	in9_pre_divn_cnfg[14:8] – Starting address	
0x56	in10_fec_divp_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Numerator P Register [15:0]
0x57	in10_fec_divp_cnfg[15:8] – Starting address	
0x58	in10_fec_divq_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Denominator Q Register [15:0]
0x59	in10_fec_divq_cnfg[15:8] – Starting address	

Table 1. Register Map (Cont.)

Address	Register (Abbrev)	Register Name
0x5A	in10_pre_divn_cnfg[7:0] – Starting address	Input {3:14} Pre-divider Denominator N Register [14:0]
0x5B	in10_pre_divn_cnfg[14:8] – Starting address	
0x5C	in11_fec_divp_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Numerator P Register [15:0]
0x5D	in11_fec_divp_cnfg[15:8] – Starting address	
0x5E	in11_fec_divq_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Denominator Q Register [15:0]
0x5F	in11_fec_divq_cnfg[15:8] – Starting address	
0x60	in11_pre_divn_cnfg[7:0] – Starting address	Input {3:14} Pre-divider Denominator N Register [14:0]
0x61	in11_pre_divn_cnfg[14:8] – Starting address	
0x62	in12_fec_divp_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Numerator P Register [15:0]
0x63	in12_fec_divp_cnfg[15:8] – Starting address	
0x64	in12_fec_divq_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Denominator Q Register [15:0]
0x65	in12_fec_divq_cnfg[15:8] – Starting address	
0x66	in12_pre_divn_cnfg[7:0] – Starting address	Input {3:14} Pre-divider Denominator N Register [14:0]
0x67	in12_pre_divn_cnfg[14:8] – Starting address	
0x68	in13_fec_divp_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Numerator P Register [15:0]
0x69	in13_fec_divp_cnfg[15:8] – Starting address	
0x6A	in13_fec_divq_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Denominator Q Register [15:0]
0x6B	in13_fec_divq_cnfg[15:8] – Starting address	
0x6C	in13_pre_divn_cnfg[7:0] – Starting address	Input {3:14} Pre-divider Denominator N Register [14:0]
0x6D	in13_pre_divn_cnfg[14:8] – Starting address	
0x6E	in14_fec_divp_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Numerator P Register [15:0]
0x6F	in14_fec_divp_cnfg[15:8] – Starting address	
0x70	in14_fec_divq_cnfg[7:0] – Starting address	Input {3:14} FEC Divider Denominator Q Register [15:0]
0x71	in14_fec_divq_cnfg[15:8] – Starting address	
0x72	in14_pre_divn_cnfg[7:0] – Starting address	Input {3:14} Pre-divider Denominator N Register [14:0]
0x73	in14_pre_divn_cnfg[14:8] – Starting address	
0x7F	page_reg	Page Register
Reference Monitor Registers		
0x80	freq_mon_factor_cnfg	Frequency Monitor Factor Configuration Register
0x81	hard_freq_mon_threshold_cnfg	Hard Frequency Monitor Threshold Configuration Register
0x82	soft_freq_mon_threshold_cnfg	Soft Frequency Monitor Threshold Configuration Register
0x83	upper_threshold_0_cnfg	Upper Threshold {0:3} Configuration Register
0x84	lower_threshold_0_cnfg	Lower Threshold {0:3} Configuration Register
0x85	bucket_size_0_cnfg	Bucket Size {0:3} Configuration Register
0x86	decay_rate_0_cnfg	Decay Rate {0:3} Configuration Register

Table 1. Register Map (Cont.)

Address	Register (Abbrev)	Register Name
0x87	*_1_cnfg – Starting address	Upper Threshold {0:3} Configuration Register
0x8B	*_2_cnfg – Starting address	Upper Threshold {0:3} Configuration Register
0x8F	*_3_cnfg – Starting address	Upper Threshold {0:3} Configuration Register
0x93–0xA0	in{1:14}_freq_read_sts	Input {1:14} Frequency Read Status Register
0xA1	remote_input_valid_cnfg[8:1]	Remote Input Valid Configuration Register [8:1]
0xA2	remote_input_valid_cnfg[14:9]	Remote Input Valid Configuration Register [14:9]
0xA3	phase_alarm_time_cnfg	Phase Alarm Time Configuration Register
0xA4	los_sts	Loss of Signal Status Register
0xA5–0xB2	in{1:14}_sts	Input {1:14} Status Register
0xB3–0xB4	in{1:2}_los_sync_cnfg	Input {1:2} LOS Sync Configuration Register
0xB5–0xC0	in{3:14}_los_sync_cnfg	Input {3:14} LOS Sync Configuration Register
0xC1	in{4-1}_sync_phase_cnfg	Input 4–1 Sync Phase Configuration Register
0xC2	in{8-5}_sync_phase_cnfg	Input 8–5 Sync Phase Configuration Register
0xC3	in[12-9}_sync_phase_cnfg	Input 12–9 Sync Phase Configuration Register
0xC4	in{14-13}_sync_phase_cnfg	Input 14–13 Sync Phase Configuration Register
0xC5–0xD0	in{3:14}_phase_offset_cnfg	Input {3:14} Phase Offset Configuration Register
0x0FF	page_reg	Page Register
DPLL1 Registers		
0x100	dpll1_priority_table_sts[7:0]	DPLL{1:2} Priority Table Status Register [7:0]
0x101	dpll1_priority_table_sts[15:8]	DPLL{1:2} Priority Table Status Register [15:8]
0x102	dpll1_operating_sts	DPLL{1:2} Operating Status Register
0x103	dpll1_current_dpll_freq_sts[7:0]	DPLL{1:2} Current DPLL Frequency Status Register [39:0]
0x104	dpll1_current_dpll_freq_sts[15:8]	
0x105	dpll1_current_dpll_freq_sts[23:16]	
0x106	dpll1_current_dpll_freq_sts[31:24]	
0x107	dpll1_current_dpll_freq_sts[39:32]	
0x108	dpll1_current_dpll_phase_sts[7:0]	DPLL{1:2} Current DPLL Phase Status Register [19:0]
0x109	dpll1_current_dpll_phase_sts[15:8]	
0x10A	dpll1_current_dpll_phase_sts[19:16]	
0x10B	dpll1_tod_sts[7:0]	DPLL{1:2} Time of Day Status Nsec Register [31:0]
0x10C	dpll1_tod_sts[15:8]	
0x10D	dpll1_tod_sts[23:16]	
0x10E	dpll1_tod_sts[31:24]	

Table 1. Register Map (Cont.)

Address	Register (Abbrev)	Register Name
0x10F	dpll1_tod_sts[39:32]	DPLL{1:2} Time of Day Status Sec Register [79:32]
0x110	dpll1_tod_sts[47:40]	
0x111	dpll1_tod_sts[55:48]	
0x112	dpll1_tod_sts[63:56]	
0x113	dpll1_tod_sts[71:64]	
0x114	dpll1_tod_sts[79:72]	
0x115	dpll1_tod_trigger	DPLL{1:2} Time of Day Trigger Register
0x116	dpll1_input_mode_cnfg	DPLL{1:2} Input Mode Configuration Register
0x117	dpll1_mon_sw_pbo_cnfg	DPLL{1:2} Monitor Software Register
0x118	dpll1_in1_in2_sel_priority_cnfg	DPLL{1:2} Input 1/2 Select Priority Configuration Register
0x119	dpll1_in3_in4_sel_priority_cnfg	DPLL{1:2} Input 3/4 Select Priority Configuration Register
0x11A	dpll1_in5_in6_sel_priority_cnfg	DPLL{1:2} Input 5/6 Select Priority Configuration Register
0x11B	dpll1_in7_in8_sel_priority_cnfg	DPLL{1:2} Input 7/8 Select Priority Configuration Register
0x11C	dpll1_in9_in10_sel_priority_cnfg	DPLL{1:2} Input 9/10 Select Priority Configuration Register
0x11D	dpll1_in11_in12_sel_priority_cnfg	DPLL{1:2} Input 11/12 Select Priority Configuration Register
0x11E	dpll1_in13_in14_sel_priority_cnfg	DPLL{1:2} Input 13/14 Select Priority Configuration Register
0x11F	dpll1_input_sel_cnfg	DPLL{1:2} Input Select Configuration Register
0x120	dpll1_operating_mode_cnfg	DPLL{1:2} Operating Mode Configuration Register
0x121	dpll1_fb_sel_cnfg	DPLL{1:2} Feedback Select Configuration Register
0x122	dpll1_update_event_cnfg	DPLL{1:2} Update Event Configuration Register
0x123	dpll1_dpll_path_cnfg	DPLL1 DPLL Path Configuration Register
0x124	dpll1_dpll_start_bw_damping_cnfg	DPLL{1:2} DPLL Start Bandwidth Damping Configuration Register
0x125	dpll1_dpll_acq_bw_damping_cnfg	DPLL{1:2} DPLL Acquired Bandwidth Damping Configuration Register
0x126	dpll1_dpll_locked_bw_damping_cnfg	DPLL{1:2} DPLL Locked Bandwidth Configuration Register
0x127	dpll1_bw_overshoot_cnfg	DPLL{1:2} Bandwidth Overshoot Configuration Register
0x128	dpll1_phase_loss_coarse_limit_cnfg	DPLL{1:2} Phase Loss Coarse Limit Configuration Register
0x129	dpll1_phase_loss_fine_limit_cnfg	DPLL{1:2} Phase Loss Fine Limit Configuration Register
0x12A	dpll1_holdover_mode_cnfg[7:0]	DPLL{1:2} Holdover Mode Configuration Register [7:0]
0x12B	dpll1_holdover_mode_cnfg[15:8]	DPLL{1:2} Holdover Mode Configuration Register [15:8]
0x12C	dpll1_holdover_freq_cnfg[7:0]	DPLL{1:2} Holdover Frequency Configuration Register
0x12D	dpll1_holdover_freq_cnfg[15:8]	
0x12E	dpll1_holdover_freq_cnfg[23:16]	
0x12F	dpll1_holdover_freq_cnfg[31:24]	
0x130	dpll1_holdover_freq_cnfg[39:32]	
0x131	dpll1_dpll_freq_soft_limit_cnfg	DPLL{1:2} DPLL Frequency Soft Limit Configuration Register
0x132	dpll1_dpll_freq_hard_limit_cnfg[7:0]	DPLL{1:2} DPLL Frequency Hard Limit Configuration Register [7:0]

Table 1. Register Map (Cont.)

Address	Register (Abbrev)	Register Name
0x133	dpll1_dpll_freq_hard_limit_cnfg[15:8]	DPLL{1:2} DPLL Frequency Hard Limit Configuration Register [15:8]
0x134	dpll1_tod_cnfg[7:0]	DPLL{1:2} Time of Day Configuration Register [79:0]
0x135	dpll1_tod_cnfg[15:8]	
0x136	dpll1_tod_cnfg[23:16]	
0x137	dpll1_tod_cnfg[31:24]	
0x138	dpll1_tod_cnfg[39:32]	
0x139	dpll1_tod_cnfg[47:40]	
0x13A	dpll1_tod_cnfg[55:48]	
0x13B	dpll1_tod_cnfg[63:56]	
0x13C	dpll1_tod_cnfg[71:64]	
0x13D	dpll1_tod_cnfg[79:72]	
0x13E	dpll1_fr_mfr_sync_cnfg	DPLL{1:2} Frame/Multi-Frame Sync Configuration Register
0x13F	dpll1_sync_monitor_cnfg	DPLL{1:2} Sync Monitor Configuration Register
0x140	dpll1_sync_edge_cnfg	DPLL{1:2} Sync Edge Configuration Register
0x141–0x142	reserved	reserved
0x143	dpll1_phase_offset_cnfg[7:0]	DPLL{1:2} Phase Offset Configuration Register [28:0]
0x144	dpll1_phase_offset_cnfg[15:8]	
0x145	dpll1_phase_offset_cnfg[23:15]	
0x146	dpll1_phase_offset_cnfg[28:24]	
0x147	dpll1_timer_interval[7:0]	DPLL{1:2} Timer Interval Register [7:0]
0x148	dpll1_timer_interval[13:8]	DPLL{1:2} Timer Interval Register [13:8]
0x149	dpll1_sys_time_sts[7:0]	DPLL{1:2} System Time Status Register
0x14A	dpll1_sys_time_sts[15:8]	
0x14B	dpll1_sys_time_sts[23:15]	
0x14C	dpll1_sys_time_sts[31:24]	
0x14D	dpll1_bw_sw_time1_cnfg	DPLL{1:2} Bandwidth Software Time 1 Configuration Register
0x14E	dpll1_bw_sw_time2_cnfg	DPLL{1:2} Bandwidth Software Time 2 Configuration Register
0x14F	dpll1_bw_sw_time2_cnfg	DPLL{1:2} Bandwidth Software Time 3 Configuration Register
0x150	dpll1_slave_force_ref_sel_cnfg	DPLL{1:2} Slave Force Reference Select Configuration Register
0x151	dpll1_prog_ph_limit_cnfg[7:0]	DPLL{1:2} Program Limit Configuration Register [23:0]
0x152	dpll1_prog_ph_limit_cnfg[15:8]	
0x153	dpll1_prog_ph_limit_cnfg[23:16]	
0x17F	page_reg	Page Register
DPLL2 Registers		
0x180	dpll2_priority_table_sts[7:0]	DPLL{1:2} Priority Table Status Register [7:0]

Table 1. Register Map (Cont.)

Address	Register (Abbrev)	Register Name
0x181	dpll2_priority_table_sts[15:8]	DPLL{1:2} Priority Table Status Register [15:8]
0x182	dpll2_operating_sts	DPLL{1:2} Operating Status Register
0x183	dpll2_current_dpll_freq_sts[7:0]	DPLL{1:2} Current DPLL Frequency Status Register [39:0]
0x184	dpll2_current_dpll_freq_sts[15:8]	
0x185	dpll2_current_dpll_freq_sts[23:16]	
0x186	dpll2_current_dpll_freq_sts[31:24]	
0x187	dpll2_current_dpll_freq_sts[39:32]	
0x188	dpll2_current_dpll_phase_sts[7:0]	DPLL{1:2} Current DPLL Phase Status Register [19:0]
0x189	dpll2_current_dpll_phase_sts[15:8]	
0x18A	dpll2_current_dpll_phase_sts[19:16]	
0x18B	dpll2_tod_sts[7:0]	DPLL{1:2} Time of Day Status Nsec Register [31:0]
0x18C	dpll2_tod_sts[15:8]	
0x18D	dpll2_tod_sts[23:16]	
0x18E	dpll2_tod_sts[31:24]	
0x18F	dpll2_tod_sts[39:32]	DPLL{1:2} Time of Day Status Sec Register [79:32]
0x190	dpll2_tod_sts[47:40]	
0x191	dpll2_tod_sts[55:48]	
0x192	dpll2_tod_sts[63:56]	
0x193	dpll2_tod_sts[71:64]	
0x194	dpll2_tod_sts[79:72]	
0x195	dpll2_tod_trigger	DPLL{1:2} Time of Day Trigger Register
0x196	dpll2_input_mode_cnfg	DPLL{1:2} Input Mode Configuration Register
0x197	dpll2_mon_sw_pbo_cnfg	DPLL{1:2} Monitor Software Register
0x198	dpll2_in1_in2_sel_priority_cnfg	DPLL{1:2} Input 1/2 Select Priority Configuration Register
0x199	dpll2_in3_in4_sel_priority_cnfg	DPLL{1:2} Input 3/4 Select Priority Configuration Register
0x19A	dpll2_in5_in6_sel_priority_cnfg	DPLL{1:2} Input 5/6 Select Priority Configuration Register
0x19B	dpll2_in7_in8_sel_priority_cnfg	DPLL{1:2} Input 7/8 Select Priority Configuration Register
0x19C	dpll2_in9_in10_sel_priority_cnfg	DPLL{1:2} Input 9/10 Select Priority Configuration Register
0x19D	dpll2_in11_in12_sel_priority_cnfg	DPLL{1:2} Input 11/12 Select Priority Configuration Register
0x19E	dpll2_in13_in14_sel_priority_cnfg	DPLL{1:2} Input 13/14 Select Priority Configuration Register
0x19F	dpll2_input_sel_cnfg	DPLL{1:2} Input Select Configuration Register
0x1A0	dpll2_operating_mode_cnfg	DPLL{1:2} Operating Mode Configuration Register
0x1A1	dpll2_fb_sel_cnfg	DPLL{1:2} Feedback Select Configuration Register
0x1A2	dpll2_update_event_cnfg	DPLL{1:2} Update Event Configuration Register
0x1A3	dpll2_dpll_path_cnfg	DPLL2 DPLL Path Configuration Register
0x1A4	dpll2_dpll_start_bw_damping_cnfg	DPLL{1:2} DPLL Start Bandwidth Damping Configuration Register

Table 1. Register Map (Cont.)

Address	Register (Abbrev)	Register Name
0x1A5	dpll2_dpll_acq_bw_damping_cnfg	DPLL{1:2} DPLL Acquired Bandwidth Damping Configuration Register
0x1A6	dpll2_dpll_locked_bw_damping_cnfg	DPLL{1:2} DPLL Locked Bandwidth Configuration Register
0x1A7	dpll2_bw_overshoot_cnfg	DPLL{1:2} Bandwidth Overshoot Configuration Register
0x1A8	dpll2_phase_loss_coarse_limit_cnfg	DPLL{1:2} Phase Loss Coarse Limit Configuration Register
0x1A9	dpll2_phase_loss_fine_limit_cnfg	DPLL{1:2} Phase Loss Fine Limit Configuration Register
0x1AA	dpll2_holdover_mode_cnfg[7:0]	DPLL{1:2} Holdover Mode Configuration Register [7:0]
0x1AB	dpll2_holdover_mode_cnfg[15:8]	DPLL{1:2} Holdover Mode Configuration Register [15:8]
0x1AC	dpll2_holdover_freq_cnfg[7:0]	DPLL{1:2} Holdover Frequency Configuration Register
0x1AD	dpll2_holdover_freq_cnfg[15:8]	
0x1AE	dpll2_holdover_freq_cnfg[23:16]	
0x1AF	dpll2_holdover_freq_cnfg[31:24]	
0x1B0	dpll2_holdover_freq_cnfg[39:32]	
0x1B1	dpll2_dpll_freq_soft_limit_cnfg	DPLL{1:2} DPLL Frequency Soft Limit Configuration Register
0x1B2	dpll2_dpll_freq_hard_limit_cnfg[7:0]	DPLL{1:2} DPLL Frequency Hard Limit Configuration Register [7:0]
0x1B3	dpll2_dpll_freq_hard_limit_cnfg[15:8]	DPLL{1:2} DPLL Frequency Hard Limit Configuration Register [15:8]
0x1B4	dpll2_tod_cnfg[7:0]	DPLL{1:2} Time of Day Configuration Register [79:0]
0x1B5	dpll2_tod_cnfg[15:8]	
0x1B6	dpll2_tod_cnfg[23:16]	
0x1B7	dpll2_tod_cnfg[31:24]	
0x1B8	dpll2_tod_cnfg[39:32]	
0x1B9	dpll2_tod_cnfg[47:40]	
0x1BA	dpll2_tod_cnfg[55:48]	
0x1BB	dpll2_tod_cnfg[63:56]	
0x1BC	dpll2_tod_cnfg[71:64]	
0x1BD	dpll2_tod_cnfg[79:72]	
0x1BE	dpll2_fr_mfr_sync_cnfg	DPLL{1:2} Frame/Multi-Frame Sync Configuration Register
0x1BF	dpll2_sync_monitor_cnfg	DPLL{1:2} Sync Monitor Configuration Register
0x1C0	dpll2_sync_edge_cnfg	DPLL{1:2} Sync Edge Configuration Register
0x1C1–0x1C2	reserved	reserved
0x1C3	dpll2_phase_offset_cnfg[7:0]	DPLL{1:2} Phase Offset Configuration Register [28:0]
0x1C4	dpll2_phase_offset_cnfg[15:8]	
0x1C5	dpll2_phase_offset_cnfg[23:15]	
0x1C6	dpll2_phase_offset_cnfg[28:24]	
0x1C7	dpll2_timer_interval[7:0]	DPLL{1:2} Timer Interval Register [7:0]
0x1C8	dpll2_timer_interval[13:8]	DPLL{1:2} Timer Interval Register [13:8]

Table 1. Register Map (Cont.)

Address	Register (Abbrev)	Register Name
0x1C9	dpll2_sys_time_sts[7:0]	DPLL{1:2} System Time Status Register
0x1CA	dpll2_sys_time_sts[15:8]	
0x1CB	dpll2_sys_time_sts[23:15]	
0x1CC	dpll2_sys_time_sts[31:24]	
0x1CD	dpll2_bw_sw_time1_cnfg	DPLL{1:2} Bandwidth Software Time 1 Configuration Register
0x1CE	dpll2_bw_sw_time2_cnfg	DPLL{1:2} Bandwidth Software Time 2 Configuration Register
0x1CF	dpll2_bw_sw_time2_cnfg	DPLL{1:2} Bandwidth Software Time 3 Configuration Register
0x1D0	dpll2_slave_force_ref_sel_cnfg	DPLL{1:2} Slave Force Reference Select Configuration Register
0x1D1	dpll2_prog_ph_limit_cnfg[7:0]	DPLL{1:2} Program Limit Configuration Register [23:0]
0x1D2	dpll2_prog_ph_limit_cnfg[15:8]	
0x1D3	dpll2_prog_ph_limit_cnfg[23:16]	
0x1FF	page_reg	Page Register
DPLL3 Registers		
0x200	dpll3_priority_table_sts[7:0]	DPLL3 Priority Table Status Register [7:0]
0x201	dpll3_priority_table_sts[15:8]	DPLL3 Priority Table Status Register [15:8]
0x202	dpll3_operating_sts	DPLL3 Operating Status Register
0x203–0x215	reserved	reserved
0x216	dpll3_input_mode_cnfg	DPLL3 Input Mode Configuration Register
0x217	dpll3_mon_cnfg	DPLL3 Monitor Configuration Register
0x218	dpll3_in1_in2_sel_priority_cnfg	DPLL3 Input 1/2 Select Priority Configuration Register
0x219	dpll3_in3_in4_sel_priority_cnfg	DPLL3 Input 3/4 Select Priority Configuration Register
0x21A	dpll3_in5_in6_sel_priority_cnfg	DPLL3 Input 5/6 Select Priority Configuration Register
0x21B	dpll3_in7_in8_sel_priority_cnfg	DPLL3 Input 7/8 Select Priority Configuration Register
0x21C	dpll3_in9_in10_sel_priority_cnfg	DPLL3 Input 9/10 Select Priority Configuration Register
0x21D	dpll3_in11_in12_sel_priority_cnfg	DPLL3 Input 11/12 Select Priority Configuration Register
0x21E	dpll3_in13_in14_sel_priority_cnfg	DPLL3 Input 13/14 Select Priority Configuration Register
0x21F	dpll3_input_sel_cnfg	DPLL3 Input Select Configuration Register
0x220	dpll3_operating_mode_cnfg	DPLL3 Operating Mode Configuration Register
0x221–0x225	reserved	reserved
0x226	dpll3_dpll_locked_bw_damping_cnfg	DPLL3 DPLL Locked Bandwidth Damping Configuration Register
0x227	reserved	Reserved
0x228	dpll3_phase_loss_coarse_limit_cnfg	DPLL3 Phase Loss Coarse Limit Register
0x229	dpll3_phase_loss_fine_limit_cnfg	DPLL3 Phase Loss Fine Limit Configuration Register
0x22A	reserved	reserved
0x22B	dpll3_holdover_mode_cnfg	DPLL3 Holdover Mode Configuration Register

Table 1. Register Map (Cont.)

Address	Register (Abbrev)	Register Name
0x22C–0x230	reserved	reserved
0x231	dpll3_dpll_freq_soft_limit_cnfg	DPLL3 DPLL Frequency Soft Limit Configuration Register
0x232	dpll3_dpll_freq_hard_limit_cnfg[7:0]	DPLL3 DPLL Frequency Hard Limit Configuration Register [7:0]
0x233	dpll3_dpll_freq_hard_limit_cnfg[15:8]	DPLL3 DPLL Frequency Hard Limit Configuration Register [15:8]
0x250	dpll3_fbdiv_cnfg[7:0]	DPLL3 Feedback Divisor Configuration Register [7:0]
0x251	dpll3_fbdiv_cnfg[13:8]	DPLL3 Feedback Divisor Configuration Register [13:8]
0x252	dpll3_divn_frac_l_cnfg	DPLL3 Divisor N Fractional L Configuration Register
0x253	dpll3_divn_frac_m_cnfg	DPLL3 Divisor N Fractional M Configuration Register
0x254	dpll3_divn_frac_h_cnfg	DPLL3 Divisor N Fractional H Configuration Register
0x255	dpll3_divn_den_l_cnfg	DPLL3 Divisor N Denominator L Configuration Register
0x256	dpll3_divn_den_h_cnfg	DPLL3 Divisor N Denominator H Configuration Register
0x257	dpll3_divn_num_l_cnfg	DPLL3 Divisor N Numerator L Configuration Register
0x258	dpll3_divn_num_h_cnfg	DPLL3 Divisor N Numerator H Configuration Register
0x259	dpll3_divn_int_cnfg	DPLL3 Divisor N Interrupt Configuration Register
0x25A–0x25B	reserved	reserved
0x25C	dpll3_dpll_dsm_cnfg	DPLL3 DPLL DSM Configuration Register
0x25D–0x27E	reserved	reserved
0x27F	page_reg	Page Register
APLL1 Registers		
0x280	apll1_icp_ctrl_cnfg	APLL1 Charge Pump Current Control Configuration Register
0x281	apll1_divisor_frac_l_cnfg	APLL1 Divisor Fractional L Configuration Register
0x282	apll1_divisor_frac_m_cnfg	APLL1 Divisor Fractional M Configuration Register
0x283	apll1_divisor_frac_h_cnfg	APLL1 Divisor Fractional H Configuration Register
0x284	apll1_divisor_den_l_cnfg	APLL1 Divisor Denominator L Configuration Register
0x285	apll1_divisor_den_h_cnfg	APLL1 Divisor Denominator H Configuration Register
0x286	apll1_divisor_num_l_cnfg	APLL1 Divisor Numerator L Configuration Register
0x287	apll1_divisor_num_h_cnfg	APLL1 Divisor Numerator H Configuration Register
0x288	apll1_dsm_cnfg	APLL1 DSM Configuration Register
0x289	apll1_divisor_int_cnfg	APLL1 Divisor Integer Configuration Register
0x28A	apll1_fr_ratio_cnfg[7:0]	APLL1 Frame/Multi-Frame Ratio Configuration Register [7:0]
0x28B	apll1_fr_ratio_cnfg[15:8]	APLL1 Frame/Multi-Frame Ratio Configuration Register [15:8]
0x28C	apll1_fr_ratio_cnfg[23:16]	APLL1 Frame/Multi-Frame Ratio Configuration Register [23:16]
0x28D	apll1_fr_ratio_cnfg[28:24]	APLL1 Frame/Multi-Frame Ratio Configuration Register [28:24]
0x28E	apll2_icp_ctrl_cnfg	APLL2 Change Pump Current Control Configuration Register
0x28F	apll2_divisor_frac_l_cnfg	APLL2 Divisor Fractional L Configuration Register

Table 1. Register Map (Cont.)

Address	Register (Abbrev)	Register Name
0x290	apll2_divisor_frac_m_cnfg	APLL2 Divisor Fractional M Configuration Register
0x291	apll2_divisor_frac_h_cnfg	APLL2 Divisor Fractional H Configuration Register
0x292	apll2_divisor_den_l_cnfg	APLL2 Divisor Denominator L Configuration Register
0x293	apll2_divisor_den_h_cnfg	APLL2 Divisor Denominator H Configuration Register
0x294	apll2_divisor_num_l_cnfg	APLL2 Divisor Numerator L Configuration Register
0x295	apll2_divisor_num_h_cnfg	APLL2 Divisor Numerator H Configuration Register
0x296	apll2_dsm_cnfg	APLL2 DSM Configuration Register
0x297	apll2_divisor_int_cnfg	APLL2 Divisor Integer Configuration Register
0x298	apll2_fr_ratio_cnfg[7:0]	APLL2 Frame/Multi-Frame Ratio Configuration Register [7:0]
0x299	apll2_fr_ratio_cnfg[15:8]	APLL2 Frame/Multi-Frame Ratio Configuration Register [15:8]
0x29A	apll2_fr_ratio_cnfg[23:16]	APLL2 Frame/Multi-Frame Ratio Configuration Register [23:16]
0x29B	apll2_fr_ratio_cnfg[28:24]	APLL2 Frame/Multi-Frame Ratio Configuration Register [28:24]
System Registers		
0x29C	rsvd	Reserved Register
0x29D	rsvd	Reserved Register
0x29E	rsvd	Reserved Register
0x29F	rsvd	Reserved Register
0x2A0	rsvd	Reserved Register
0x2A1	rsvd	Reserved Register
0x2A2	rsvd	Reserved Register
0x2A3	rsvd	Reserved Register
0x2A4	rsvd	Reserved Register
0x2A5	rsvd	Reserved Register
0x2A6	rsvd	Reserved Register
0x2A7–0x2FE	rsvd	Reserved Register
0x2FF	page_reg	Page Register
Output Divider Registers		
0x300	out1_mux_cnfg	Output 1 Mux Configuration Register
0x301	out1_div1_cnfg	Output 1 Divisor 1 Configuration Register [4:0]
0x302	out1_div2_cnfg[7:0]	Output 1 Divisor 2 Configuration Register [26:0]
0x303	out1_div2_cnfg[15:8]	
0x304	out1_div2_cnfg[23:16]	
0x305	out1_div2_cnfg[26:24]	
0x306	out1_ph1_cnfg	Output 1 Phase 1 Configuration Register [4:0]

Table 1. Register Map (Cont.)

Address	Register (Abbrev)	Register Name
0x307	out1_ph2_cnfg[7:0]	Output 1 Phase 2 Configuration Register [26:0]
0x308	out1_ph2_cnfg[15:8]	
0x309	out1_ph2_cnfg[23:16]	
0x30A	out1_ph2_cnfg[26:24]	
0x30B	out1_fine_ph_cnfg	Output 1 Fine Phase Configuration Register
0x30C	out2_mux_cnfg	Output 2 Mux Configuration Register
0x30D	out2_div1_cnfg	Output 2 Divisor 1 Configuration Register [4:0]
0x30E	out2_div2_cnfg[7:0]	Output 2 Divisor 2 Configuration Register [26:0]
0x30F	out2_div2_cnfg[15:8]	
0x310	out2_div2_cnfg[23:16]	
0x311	out2_div2_cnfg[26:24]	
0x312	out2_ph1_cnfg[4:0]	Output 2 Phase 1 Configuration Register [4:0]
0x313	out2_ph2_cnfg[7:0]	Output 2 Phase 2 Configuration Register [7:0]
0x314	out2_ph2_cnfg[15:8]	Output 2 Phase 2 Configuration Register [15:8]
0x315	out2_ph2_cnfg[23:16]	Output 2 Phase 2 Configuration Register [23:16]
0x316	out2_ph2_cnfg[26:24]	Output 2 Phase 2 Configuration Register [26:24]
0x317	out2_fine_ph_cnfg	Output 2 Fine Phase Configuration Register
0x318	out3_mux_cnfg	Output 3 Mux Configuration Register
0x319	out3_div1_cnfg[4:0]	Output 3 Divisor 1 Configuration Register [4:0]
0x31A	out3_div2_cnfg[7:0]	Output 3 Divisor 2 Configuration Register [7:0]
0x31B	out3_div2_cnfg[15:8]	Output 3 Divisor 2 Configuration Register [15:8]
0x31C	out3_div2_cnfg[23:16]	Output 3 Divisor 2 Configuration Register [23:16]
0x31D	out3_div2_cnfg[26:24]	Output 3 Divisor 2 Configuration Register [26:24]
0x31E	out3_ph1_cnfg[4:0]	Output 3 Phase 1 Configuration Register [4:0]
0x31F	out3_ph2_cnfg[7:0]	Output 3 Phase 2 Configuration Register [7:0]
0x320	out3_ph2_cnfg[15:8]	Output 3 Phase 2 Configuration Register [15:8]
0x321	out3_ph2_cnfg[23:16]	Output 3 Phase 2 Configuration Register [23:16]
0x322	out3_ph2_cnfg[26:24]	Output 3 Phase 2 Configuration Register [26:24]
0x323	out3_ph2_cnfg[26:24]	Output 3 Fine Phase Configuration Register
0x324	out4_mux_cnfg	Output 4 Mux Configuration Register
0x325	out4_div1_cnfg[4:0]	Output 4 Divisor 1 Configuration Register [4:0]
0x326	out4_div2_cnfg[7:0]	Output 4 Divisor 2 Configuration Register [7:0]
0x327	out4_div2_cnfg[15:8]	Output 4 Divisor 2 Configuration Register [15:8]
0x328	out4_div2_cnfg[23:16]	Output 4 Divisor 2 Configuration Register [23:16]
0x329	out4_div2_cnfg[26:24]	Output 4 Divisor 2 Configuration Register [26:24]
0x32A	out4_ph1_cnfg[4:0]	Output 4 Phase 1 Configuration Register [4:0]

Table 1. Register Map (Cont.)

Address	Register (Abbrev)	Register Name
0x32B	out4_ph2_cnfg[7:0]	Output 4 Phase 2 Configuration Register [7:0]
0x32C	out4_ph2_cnfg[15:8]	Output 4 Phase 2 Configuration Register [15:8]
0x32D	out4_ph2_cnfg[23:16]	Output 4 Phase 2 Configuration Register [23:16]
0x32E	out4_ph2_cnfg[26:24]	Output 4 Phase 2 Configuration Register [26:24]
0x32F	out4_fine_ph_cnfg	Output 4 Fine Phase Configuration Register
0x330	out5_mux_cnfg	Output 5 Mux Configuration Register
0x331	out5_div1_cnfg[4:0]	Output 5 Divisor 1 Configuration Register [4:0]
0x332	out5_div2_cnfg[7:0]	Output 5 Divisor 2 Configuration Register [7:0]
0x333	out5_div2_cnfg[15:8]	Output 5 Divisor 2 Configuration Register [15:8]
0x334	out5_div2_cnfg[23:16]	Output 5 Divisor 2 Configuration Register [23:16]
0x335	out5_div2_cnfg[26:24]	Output 5 Divisor 2 Configuration Register [26:24]
0x336	out5_ph1_cnfg[4:0]	Output 5 Phase 1 Configuration Register [4:0]
0x337	out5_ph2_cnfg[7:0]	Output 5 Phase 2 Configuration Register [7:0]
0x338	out5_ph2_cnfg[15:8]	Output 5 Phase 2 Configuration Register [15:8]
0x339	out5_ph2_cnfg[23:16]	Output 5 Phase 2 Configuration Register [23:16]
0x33A	out5_ph2_cnfg[26:24]	Output 5 Phase 2 Configuration Register [26:24]
0x33B	out5_fine_ph_cnfg	Output 5 Fine Phase Configuration Register
0x33C	out6_mux_cnfg	Output 6 Mux Configuration Register
0x33D	out6_div1_cnfg[7:0]	Output 6 Divisor 1 Configuration Register [7:0]
0x33E	out6_div2_cnfg[7:0]	Output 6 Divisor 2 Configuration Register [7:0]
0x33F	out6_div2_cnfg[15:8]	Output 6 Divisor 2 Configuration Register [15:8]
0x340	out6_div2_cnfg[23:16]	Output 6 Divisor 2 Configuration Register [23:16]
0x341	out6_div2_cnfg[26:24]	Output 6 Divisor 2 Configuration Register [26:24]
0x342	out6_ph1_cnfg	Output 6 Phase 1 Configuration Register [4:0]
0x343	out6_ph2_cnfg[7:0]	Output 6 Phase 2 Configuration Register [7:0]
0x344	out6_ph2_cnfg[15:8]	Output 6 Phase 2 Configuration Register [15:8]
0x345	out6_ph2_cnfg[23:16]	Output 6 Phase 2 Configuration Register [23:16]
0x346	out6_ph2_cnfg[26:24]	Output 6 Phase 2 Configuration Register [26:24]
0x347	out6_fine_ph_cnfg	Output 6 Fine Phase Configuration Register
0x348	out7_mux_cnfg	Output 7 Mux Configuration Register
0x349	out7_div1_cnfg[7:0]	Output 7 Divisor 1 Configuration Register [7:0]
0x34A	out7_div2_cnfg[7:0]	Output 7 Divisor 2 Configuration Register [7:0]
0x34B	out7_div2_cnfg[15:8]	Output 7 Divisor 2 Configuration Register [15:8]
0x34C	out7_div2_cnfg[23:16]	Output 7 Divisor 2 Configuration Register [23:16]
0x34D	out7_div2_cnfg[26:24]	Output 7 Divisor 2 Configuration Register [26:24]
0x34E	out7_ph1_cnfg[4:0]	Output 7 Phase 1 Configuration Register [4:0]

Table 1. Register Map (Cont.)

Address	Register (Abbrev)	Register Name
0x34F	out7_ph2_cnfg[7:0]	Output 7 Phase 2 Configuration Register [7:0]
0x350	out7_ph2_cnfg[15:8]	Output 7 Phase 2 Configuration Register [15:8]
0x351	out7_ph2_cnfg[23:16]	Output 7 Phase 2 Configuration Register [23:16]
0x352	out7_ph2_cnfg[26:24]	Output 7 Phase 2 Configuration Register [26:24]
0x353	out7_fine_ph_cnfg	Output 7 Fine Phase Configuration Register
0x354	out8_mux_cnfg	Output 8 Mux Configuration Register
0x355	out8_div1_cnfg[7:0]	Output 8 Divisor 1 Configuration Register [7:0]
0x356	out8_div2_cnfg[7:0]	Output 8 Divisor 2 Configuration Register [7:0]
0x357	out8_div2_cnfg[15:8]	Output 8 Divisor Configuration Register [15:8]
0x358	out8_div2_cnfg[23:8]	Output 8 Divisor Configuration Register [23:16]
0x359	out8_div2_cnfg[26:24]	Output 8 Divisor 2 Configuration Register [26:24]
0x35A	out8_ph1_cnfg[4:0]	Output 8 Phase 1 Configuration Register [4:0]
0x35B	out8_ph2_cnfg[7:0]	Output 8 Phase 2 Configuration Register [7:0]
0x35C	out8_ph2_cnfg[15:8]	Output 8 Phase 2 Configuration Register [15:8]
0x35D	out8_ph2_cnfg[23:16]	Output 8 Phase 2 Configuration Register [23:16]
0x35E	out8_ph2_cnfg[26:24]	Output 8 Phase 2 Configuration Register [26:24]
0x35F	out8_fine_ph_cnfg	Output 8 Fine Phase Configuration Register
0x360	out9_freq_cnfg	Output 9 Frequency Configuration Register
0x361–0x36B	rsvd	Reserved Register
0x36C	out10_cnfg	Output 10 Configuration Register
0x36D	out10_freq_cnfg[7:0]	Output 10 Frequency Configuration Register [7:0]
0x36E	out10_freq_cnfg[14:8]	Output 10 Frequency Configuration Register [14:8]
0x36F–0x377	rsvd	Reserved Register
0x378	out11_cnfg	Output 11 Configuration Register
0x379	out11_freq_cnfg[7:0]	Output 11 Frequency Configuration Register [7:0]
0x37A	out11_freq_cnfg[14:8]	Output 11 Frequency Configuration Register [14:8]
0x37E	fr_mfr_path_cnfg	Output Frame/Multi-Frame Sync Configuration Register
0x37F	page_reg	Page Register
Manufacturing Registers		
0x380	rsvd	Reserved Register
0x381	soft_rst	Soft Reset Register
0x382	rsvd	Reserved Register
0x383	rsvd	Reserved Register
0x384	rsvd	Reserved Register

Table 1. Register Map (Cont.)

Address	Register (Abbrev)	Register Name
0x385	rsvd	Reserved Register
0x386		
0x387		
0x388	rsvd	Reserved Register
0x389		
0x38A		
0x38B	rsvd	Reserved Register
0x38C		
0x38D		
0x38E	rsvd	Reserved Register
0x38F	rsvd	Reserved Register
0x390	rsvd	Reserved Register
0x391	rsvd	Reserved Register
0x392	rsvd	Reserved Register
0x393		
0x394	rsvd	Reserved Register
0x395	rsvd	Reserved Register
0x396	rsvd	Reserved Register
0x397	rsvd	Reserved Register
0x398	rsvd	Reserved Register
0x399	rsvd	Reserved Register
0x39A	rsvd	Reserved Register
0x39B	rsvd	Reserved Register
0x39C	rsvd	Reserved Register
0x39D	rsvd	Reserved Register
0x39E	eeprom_crc	EEPROM CRC Register
0x3FF	page_reg	Page Register

Note: OUT8 is not available for 82P33831. It is routed internally (TO_APLL3).

4 DPLL Register Descriptions

4.1 Global Control Registers

Identification Register

Register (Abbrev): id
Address: 0x00
Type: RO
Default Value: xxxx_0010

7	6	5	4	3	2	1	0
dev_id[7:0]							

Bit	Name	Description	Def. Value
7:0	dev_id[7:0]	Device identification.	xxxx_0010

MPU Selection Configuration Register

Register (Abbrev): mpu_sel_cnfg
Address: 0x01
Type: RW
Default Value: 0000_0xxx

7	6	5	4	3	2	1	0
reserved	reserved				sonet_sdh_cnfg	mpu_sel_cnfg[1:0]	

Bit	Name	Description	Def. Value
7	reserved (device) eeprom_rd_spd (EEPROM)	This bit selects the I2C EEPROM read speed. 0: 100 kbps 1: 400 kbps	0
6:3	reserved	reserved	000_0
2	sonet_sdh_cnfg	This bit selects the SDH or SONET network type. 0: SDH. The DPLL required clock is 2.048 MHz when the in{1:14}_freq bits are ‘0001’; the output from the 16E1/16T1 path is 16E1. 1: SONET. The DPLL required clock is 1.544 MHz when the in{1:14}_freq bits are ‘0001’; the output from the 16E1/16T1 path is 16T1.	Determined by SONET/SDH pin during reset or EEPROM
1:0	mpu_sel_cnfg[1:0]	00: I2C 01: SPI 10: UART 11: EEPROM boot mode (I2C EEPROM (16-bit))	Determined by MPU_MODE[1:0] pins during reset or EEPROM

XO Frequency Configuration Register

Register (Abbrev): xo_freq_cnfg
Address: 0x02
Type: RO
Default Value: 0000_0xxx

7	6	5	4	3	2	1	0
reserved				osci_edge	xo_freq_cnfg[2:0]		

Bit	Name	Description	Def. Value
7:4	reserved	reserved	0000
3	osci_edge	This bit selects a better active edge of the master clock. 0: The rising edge 1: The falling edge	0
2:0	xo_freq_cnfg[2:0]	000: 10 MHz 001: 12.8 MHz 010: 13 MHz 011: 19.44 MHz 100: 20 MHz 101: 24.576 MHz 110: 25 MHz 111: 30.72 MHz	Determined by XO_FREQ[2:0] pins during reset or EEPROM

Nominal Frequency Configuration Register [23:0]

Register (Abbrev): nominal_freq_cnfg[23:0]
Address: 0x03, 0x04, 0x05
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
nominal_freq_cnfg[7:0]							
nominal_freq_cnfg[15:8]							
nominal_freq_cnfg[23:16]							

Bit	Name	Description	Def. Value
7:0	nominal_freq_cnfg[7:0] nominal_freq_cnfg[15:8] nominal_freq_cnfg[23:16]	nominal_freq_cnfg[23:0] represent a 2's complement signed integer. The calibration value for the master clock in ppm is obtained by multiplying this register value by 0.0000884. The calibration range is within ±741 ppm.	0000_0000

Interrupt Configuration Register

Register (Abbrev): interrupt_cnfg
Address: 0x06
Type: RW
Default Value: 0000_0010

7	6	5	4	3	2	1	0
reserved						tristate_en	int_polarity

Bit	Name	Description	Def. Value
7:2	reserved	reserved	0000_00
1	tristate_en	0: Interrupt pin only driven when active; high impedance when inactive 1: Interrupt pin always driven when inactive	1
0	int_polarity	0: Active-low pin driven low to indicate active interrupt 1: Active-high pin driven high to indicate active interrupt	0

Interrupt Status Register [7:0]

Register (Abbrev): interrupt_sts [7:0][a]
Address: 0x07
Type: RO
Default Value: 0000_0000

7	6	5	4	3	2	1	0
in[7:0]_sts_int							

Bit	Name	Description	Def. Value
7:0	in[7:0]_sts_int	0: Corresponding input has not changed status (valid/invalid) 1: Corresponding input has changed status (valid/invalid) Write 1 to clear	0

[a] Registers 0x07, 0x08, 0x09, and 0xA0 provide interrupt status information.

Interrupt Status Register [15:8]

Register (Abbrev): interrupt_sts [15:8]
Address: 0x08
Type: RO
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved		in[15:8]_sts_int					

Bit	Name	Description	Def. Value
7:6	reserved	reserved	00
5:0	in[15:8]_sts_int	0: Corresponding input has not changed status (valid/invalid) 1: Corresponding input has changed status (valid/invalid) Write 1 to clear	0

Interrupt Status Register [23:16]

Register (Abbrev): interrupt_sts[23:16]
Address: 0x09
Type: RO
Default Value: 0000_0000

7	6	5	4	3	2	1	0
rd_eeprom_done	rd_eeprom_err	dpll2_tod_sample	dpll1_tod_sample	ami2_viol	ami2_los	ami1_viol	ami1_los

Bit	Name	Description	Def. Value
7	rd_eeprom_done	1: Start-up read of external I2C EEPROM finished 0: Start-up not finished or not initiated Write 0xFF to register to clear this bit.	0
6	rd_eeprom_err	1: Error during read of external I2C EEPROM 0: No error Write 0xFF to register to clear this bit.	0
5	dpll2_tod_sample	0: Internal Time-of-Day sample timer not triggered 1: Internal Time-of-Day sample timer triggered Write 1 to clear	0
4	dpll1_tod_sample	0: Internal Time-of-Day sample timer not triggered 1: Internal Time-of-Day sample timer triggered Write 1 to clear.	0
3	ami2_viol	0: Input2 has no violation error 1: Input2 has violation error Write 1 to clear.	0
2	ami2_los	0: Input2 has no los error 1: Input2 has los error Write 1 to clear.	0
1	ami1_viol	0: Input1 has no violation error 1: Input1 has violation error Write 1 clear.	0
0	ami1_los	0: Input1 has no los error 1: Input1 has los error Write 1 to clear.	0

Interrupt Status Register [31:24]

Register (Abbrev): interrupt_sts[31:24] Address: 0x0A Type: RO Default Value: 0000_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
dpll1_operating_mode_sts	dpll1_main_ref_failed	dpll1_ex_sync_alarm	dpll2_operating_mode_sts	dpll2_main_ref_failed	dpll2_ex_sync_alarm	dpll3_operating_mode_sts	dpll3_main_ref_failed

Bit	Name	Description	Def. Value
7	dpll1_operating_mode_sts	0: Operating mode has not changed status 1: Operating mode has changed status Write 1 to clear.	0
6	dpll1_main_ref_failed	0: Input to the DPLL is qualified 1: Input to the DPLL has disqualified Write 1 to clear.	0
5	dpll1_ex_sync_alarm	0: External Input framer sync has not occurred 1: External Input framer sync has occurred Write 1 to clear.	0
4	dpll2_operating_mode_sts	0: Operating mode has not changed status 1: Operating mode has changed status Write 1 to clear.	0
3	dpll2_main_ref_failed	0: Input to the DPLL is qualified 1: Input to the DPLL has disqualified Write 1 to clear.	0
2	dpll2_ex_sync_alarm	0: External Input framer sync has not occurred 1: External Input framer sync has occurred Write 1 to clear.	0
1	dpll3_operating_mode_sts	0: Operating mode has not changed status 1: Operating mode has changed status Write 1 to clear.	0
0	dpll3_main_ref_failed	0: Input to the DPLL is qualified 1: Input to the DPLL has disqualified Write 1 to clear.	0

Interrupt Mask Configuration Register [7:0]

Register (Abbrev): interrupt_mask_cnfg[7:0][a]
Address: 0x0B
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
in[7:0]_sts_int_mask							

Bit	Name	Description	Def. Value
7:0	in[7:0]_sts_int_mask	0: Mask the corresponding interrupt source; no interrupt by this source 1: The corresponding interrupt source can generate interrupt	0

[a] Registers 0x0B, 0x0C, 0x0D, and 0x0E provide interrupt mask configuration information.

Interrupt Mask Configuration Register [15:8]

Register (Abbrev): interrupt_mask_cnfg[15:8]
Address: 0x0C
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved		in[15:8]_sts_int_mask					

Bit	Name	Description	Def. Value
7:6	reserved	reserved	0
5:0	in[15:8]_sts_int_mask	0: Mask the corresponding interrupt source; no interrupt by this source 1: The corresponding interrupt source can generate interrupt	0

Interrupt Mask Configuration Register [23:16]

Register (Abbrev): interrupt_mask_cnfg[23:16]
Address: 0x0D
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
rd_eeprom_done_mask	rd_eeprom_err_mask	dpll2_tod_sample_mask	dpll1_tod_sample_mask	ami2_viol_mask	ami2_los_mask	ami1_viol_mask	ami1_los_mask

Bit	Name	Description	Def. Value
7	rd_eeprom_done_mask	0: Mask the corresponding interrupt source; no interrupt by this source 1: The corresponding interrupt source can generate interrupt	0
6	rd_eeprom_err_mask	0: Mask the corresponding interrupt source; no interrupt by this source 1: The corresponding interrupt source can generate interrupt	0

Interrupt Mask Configuration Register [23:16]

Register (Abbrev): interrupt_mask_cnfg[23:16] Address: 0x0D Type: RW Default Value: 0000_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
5	dpll2_tod_sample_mask		0: Mask the corresponding interrupt source; no interrupt by this source 1: The corresponding interrupt source can generate interrupt				0
4	dpll1_tod_sample_mask		0: Mask the corresponding interrupt source; no interrupt by this source 1: The corresponding interrupt source can generate interrupt				0
3	ami2_viol_mask		0: Mask the corresponding interrupt source; no interrupt by this source 1: The corresponding interrupt source can generate interrupt				0
2	ami2_los_mask		0: Mask the corresponding interrupt source; no interrupt by this source 1: The corresponding interrupt source can generate interrupt				0
1	ami1_viol_mask		0: Mask the corresponding interrupt source; no interrupt by this source 1: The corresponding interrupt source can generate interrupt				0
0	ami1_los_mask		0: Mask the corresponding interrupt source; no interrupt by this source 1: The corresponding interrupt source can generate interrupt				0

Interrupt Mask Configuration Register [31:24]

Register (Abbrev): interrupt_mask_cnfg[31:24] Address: 0x0E Type: RW Default Value: 0000_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
dpll1_operating_mode_mask	dpll1_main_ref_failed_mask	dpll1_ex_sync_alarm_mask	dpll2_operating_mode_mask	dpll2_main_ref_failed_mask	dpll2_ex_sync_alarm_mask	dpll3_operating_mode_mask	dpll3_main_ref_failed_mask
Bit	**Name**		**Description**				**Def. Value**
7	dpll1_operating_mode_mask		0: Mask the corresponding interrupt source; no interrupt by this source 1: The corresponding interrupt source can generate interrupt				0
6	dpll1_main_ref_failed_mask		0: Mask the corresponding interrupt source; no interrupt by this source 1: The corresponding interrupt source can generate interrupt				0
5	dpll1_ex_sync_alarm_mask		0: Mask the corresponding interrupt source; no interrupt by this source 1: The corresponding interrupt source can generate interrupt				0

Interrupt Mask Configuration Register [31:24]

Register (Abbrev): interrupt_mask_cnfg[31:24] Address: 0x0E Type: RW Default Value: 0000_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
4	dpll2_operating_mode_mask		0: Mask the corresponding interrupt source; no interrupt by this source 1: The corresponding interrupt source can generate interrupt				0
3	dpll2_main_ref_failed_mask		0: Mask the corresponding interrupt source; no interrupt by this source 1: The corresponding interrupt source can generate interrupt				0
2	dpll2_ex_sync_alarm_mask		0: Mask the corresponding interrupt source; no interrupt by this source 1: The corresponding interrupt source can generate interrupt				0
1	dpll3_operating_mode_mask		0: Mask the corresponding interrupt source; no interrupt by this source 1: The corresponding interrupt source can generate interrupt				0
0	dpll3_main_ref_failed_mask		0: Mask the corresponding interrupt source; no interrupt by this source 1: The corresponding interrupt source can generate interrupt				0

I2C Slave Address Configuration Register

Register (Abbrev): i2c_slave_addr_cnfg Address: 0x0F Type: RW Default Value: 0101_0xxx							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
reserved	I2C_slave_addr[6:0]						
Bit	**Name**		**Description**				**Def. Value**
7	reserved		reserved				0
6:3	I2C_slave_addr[6:3]		Upper 4 bits of the 7-bit I2C address. This field can also be written from the CPU, and the I2C device address will change for the next I2C access. Note: There are no hardware restrictions on this field; the user is responsible for using an address that complies with the I2C standards.				1010
2:0	I2C_slave_addr[2:0]		Lower 3 bits of the 7-bit I2C address. This register can also be written from the CPU, and the I2C device address will change for the next I2C access. Note: There are no hardware restrictions on this field; the user is responsible for using an address that complies with the I2C standards.				Determined by I2C_AD[2:0] pins during reset or EEPROM

4.2 Configuration Registers

For 82P33xxx I/O Mapping, see section 8 82P33xxx I/O Mapping

Input {1:2} Configuration Register

Register (Abbrev): in{1:2}_cnfg
Address: 0x11, 0x12
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved	in{1:2}_400hz_sel	in{1:2}_bucket_id[1:0]		in{1:2}_freq[3:0]			

Bit	Name	Description	Def. Value
7	reserved	reserved	0
6	in{1:2}_400hz_sel	400 Hz select 0: 64+8 kHz 1: 64+8+0.4 kHz	0
5:4	in{1:2}_bucket_id[1:0]	00: Activity monitor use leak bucket configuration 0 01: Activity monitor use leak bucket configuration 1 10: Activity monitor use leak bucket configuration 2 11: Activity monitor use leak bucket configuration 3	00
3:0	in{1:2}_freq[3:0]	Always 0000; 8kHz	0000

Input {3:14} Configuration Register

Register (Abbrev): in{3:14}_cnfg
Address: 0x13–0x1E
Type: RW
Default Value: 0000_1110

7	6	5	4	3	2	1	0
in{3:14}_direct_div	in{3:14}_lock_8k	in{3:14}_bucket_id[1:0]		in{3:14}_freq[3:0]			

Bit	Name	Description	Def. Value
7	in{3:14}_direct_div	0: Input goes directly to DPLL and Monitor 1: Input goes to DPLL and monitor after pre-divider	0
6	in{3:14}_lock_8k	0: Input goes directly to DPLL 1: Input goes to DPLL after pre-divider If both direct_div and lock_8k are set to 1, lock_8k takes higher priority	0
5:4	in{3:14}_bucket_id[1:0]	00: Input activity monitor use leak bucket configuration 0 01: Input activity monitor use leak bucket configuration 1 10: Input activity monitor use leak bucket configuration 2 11: Input activity monitor use leak bucket configuration 3	00

Input {3:14} Configuration Register

Register (Abbrev): in{3:14}_cnfg Address: 0x13–0x1E Type: RW Default Value: 0000_1110							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
3:0	in{3:14}_freq[3:0]		0000: 8 kHz only 0001:1.544 MHz/2.048 MHz (depends on SONET/SDH mode) 0010: 6.48 MHz 0011: 19.44 MHz. 0100: 25.92 MHz 0101: 38.88 MHz 1001: 2 kHz 1010: 4 kHz 1011: 1 PPS 1100: 6.25 MHz 1110: 25 MHz Others: reserved (do not use) Note: Must be set to 8 kHz if going to DPLL3				IN{3:4} -> 1110 IN{5:10} -> 0011 IN{11:14} -> 0001

High Frequency Divider Configuration Register [7:0]

Register (Abbrev): hf_div_cnfg[7:0] Address: 0x1F Type: RW Default Value: 0000_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
in6_hf_div[1:0]		in5_hf_div[1:0]		in4_hf_div[1:0]		in3_hf_div[1:0]	

Bit	Name	Description	Def. Value
7:6	in6_hf_div[1:0]	These bits determine whether the HF Divider is used and what the division factor is for input frequency division. 00: Bypassed 01: Divided by 4 10: Divided by 5 11: Reserved	00
5:4	in5_hf_div[1:0]	These bits determine whether the HF Divider is used and what the division factor is for input frequency division. 00: Bypassed 01: Divided by 4 10: Divided by 5 11: Reserved	00

High Frequency Divider Configuration Register [7:0]

Register (Abbrev): hf_div_cnfg[7:0] Address: 0x1F Type: RW Default Value: 0000_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
3:2	in4_hf_div[1:0]		These bits determine whether the HF Divider is used and what the division factor is for input frequency division. 00: Bypassed 01: Divided by 4 10: Divided by 5 11: Reserved				00
1:0	in3_hf_div[1:0]		These bits determine whether the HF Divider is used and what the division factor is for input frequency division. 00: Bypassed 01: Divided by 4 10: Divided by 5 11: Reserved				00

High Frequency Divider Configuration Register [11:8]

Register (Abbrev): hf_div_cnfg[11:8] Address: 0x20 Type: RW Default Value: 0000_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
reserved				in8_hf_div[1:0]		in7_hf_div[1:0]	
Bit	**Name**		**Description**				**Def. Value**
7:4	reserved		reserved				0000
3:2	in8_hf_div[1:0]		These bits determine whether the HF Divider is used and what the division factor is for input frequency division. 00: Bypassed 01: Divided by 4 10: Divided by 5 11: Reserved				00
1:0	in7_hf_div[1:0]		These bits determine whether the HF Divider is used and what the division factor is for input frequency division. 00: Bypassed 01: Divided by 4 10: Divided by 5 11: Reserved				00

Input Power-Down Configuration Register

Register (Abbrev): in_pdn_cnfg Address: 0x21 Type: RW Default Value: 0000_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
in[8:3]_pdn						reserved	in1+2_pdn

Bit	Name	Description	Def. Value
7:2	in[8:3]_pdn	Input power down bits. 0: Not powered down (active/enabled) 1: Input powered down (inactive/disabled)	0
1	reserved	reserved	0
0	in1+2_pdn	Input power down bits. 0: Not powered down (active/enabled) 1: Input powered down (inactive/disabled)	0

Input {3:14} FEC Divider Numerator P Register [15:0]

Register (Abbrev): in{3:14}_fec_divp_cnfg[15:0] Address: 0x2C, 0x32, 0x38, 0x3E, 0x44, 0x4A, 0x50, 0x56, 0x5C, 0x62, 0x68, 0x6E 0x2D, 0x33, 0x39, 0x3F, 0x45, 0x4B, 0x51, 0x57, 0x5D, 0x63, 0x69, 0x6F Type: RW Default Value: 0000_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
in{3:14}_fec_divp_cnfg[7:0]							
in{3:14}_fec_divp_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	in{3:14}_fec_divp_cnfg[7:0] in{3:14}_fec_divp_cnfg[15:8]	This field represents the value of the numerator of FEC divider. The numerator must be smaller than or equal to the denominator. Freq_ out = fec_divp_cnfg / fec_divq_cnfg * Freq_in	0000_0000

Input {3:14} FEC Divider Denominator Q Register [15:0]

Register (Abbrev): in{3:14}_fec_divq_cnfg[15:0]
Address: 0x2E, 0x34, 0x3A, 0x40, 0x46, 0x4C, 0x52, 0x58, 0x5E, 0x64, 0x6A, 0x70
0x2F, 0x35, 0x3B, 0x41, 0x47, 0x4D, 0x53, 0x59, 0x5F, 0x65, 0x6B, 0x71
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
in{3:14}_fec_divq_cnfg[7:0]							
in{3:14}_fec_divq_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	in{3:14}_fec_divq_cnfg[7:0] in{3:14}_fec_divq_cnfg[15:8]	This field represents the value of the denominator of FEC divider. The numerator must be smaller than or equal to the denominator. Freq_ out = fec_divp_cnfg / fec_divq_cnfg * Freq_in	0000_0000

Input {3:14} Pre-divider Denominator N Register [14:0]

Register (Abbrev): in{3:14}_pre_divn_cnfg[7:0]
Address: 0x30, 0x36, 0x3C, 0x42, 0x48, 0x4E, 0x54, 0x5A, 0x60, 0x66, 0x6C, 0x72
0x31, 0x37, 0x3D, 0x43, 0x49, 0x4F, 0x55, 0x5B, 0x61, 0x67, 0x6D, 0x73
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
in{3:14}_pre_divn_cnfg[7:0]							
reserved	in{3:14}_pre_divn_cnfg[14:8]						

Bit	Name	Description	Def. Value
7:0	in{3:14}_pre_divn_cnfg[7:0]	This field represents the value by which to divide inputs that use the Pre_divider. The input frequency will be divided by the value in this register plus 1 (for example, to divide 16, program a value of 15).	0000_0000
7	reserved	reserved	0
6:0	in{3:14}_pre_divn_cnfg[14:8]	This field represents the value by which to divide inputs that use the Pre_divider. The input frequency will be divided by the value in this register plus 1 (for example, to divide 16, program a value of 15).	000_0000

Page Register

Register (Abbrev): page_reg Address: 0x7F, 0xFF, 0x17F, 0x1FF, 0x27F, 0x2FF, 0x37F, 0x3FF Type: RW Default Value: 0000_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
reserved					page[2:0]		

Bit	Name	Description	Def. Value
7:3	reserved	reserved	0000_0
2:0	page[2:0]	This register contains the pointer to the page of memory to be written or read in the next register access. This register is mapped onto every page of memory at No. 127, and therefore appears at the extended addresses x07F, x0FF, x17F, x1FF, x27F, x2FF, x37F and x3FF. If the external EEPROM is used, these memory-map addresses must contain the value of the next page (that is, x07F = x01, x0FF = x02, x17F = x03, ..., x37F = x07).	000

4.3 Reference Monitor Registers

Frequency Monitor Factor Configuration Register

Register (Abbrev): freq_mon_factor_cnfg Address: 0x80 Type: RW Default Value: 0000_1011							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
freq_mon_clk_sel	in_noise_window	reserved		freq_mon_factor[3:0]			

Bit	Name	Description	Def. Value
7	freq_mon_clk_sel	This bit selects the source of the clock to the frequency monitors, the AMI codecs, and the MPIF and CSRs. 0: Free-running clock that tracks crystal oscillator frequency 1: Clock that tracks output of dpll1	0
6	in_noise_window	For 1 PPS, 2 kHz, 4kHz, and 8kHz input, this bit determines whether the input clock whose edge respect to the reference clock is outside ±5% is enabled to be selected for DPLL. 0: Disabled 1: Enabled	0
5:4	reserved	reserved	00

Frequency Monitor Factor Configuration Register

Register (Abbrev): freq_mon_factor_cnfg
Address: 0x80
Type: RW
Default Value: 0000_1011

7	6	5	4	3	2	1	0
3:0	freq_mon_factor[3:0]		These bits determine the number of extra or missing edges by which a 16 second count of the number of input clock edges deviates from the nominal. The conversion of the count to ppm depends on the frequency of the clock. Shown is the conversion from count to ppm for a 19.44MHz clock. The count is multiplied by the accept/reject thresholds in the Hard Frequency Monitor Threshold Configuration Register and the Soft Frequency Monitor Threshold Configuration Register to convert to them to ppm.				1011

freq_mon_factor	Missing/Extra Edge count	ppm at 19.44MHz
0000	1	0.0032
0001	2	0.0064
0010	4	0.0129
0011	8	0.0257
0100	16	0.0514
0101	32	0.103
0110	64	0.206
0111	128	0.412
1000	256	0.823
1001	512	1.646
1010	1024	3.292
1011	1184	3.81
1100–1111	1430	4.60

Hard Frequency Monitor Threshold Configuration Register

Register (Abbrev): hard_freq_mon_threshold_cnfg
Address: 0x81
Type: RW
Default Value: 0010_0011

7	6	5	4	3	2	1	0
hard_accept_threshold[3:0]				hard_reject_threshold[3:0]			

Bit	Name	Description	Def. Value
7:4	hard_accept_threshold[3:0]	Accepting threshold of reference clock monitoring. To calculate the limit in ppm, add one to the 4-bit value in the register and multiply by freq_mon_factor in the Frequency Monitor Factor Configuration Register (default 3.81 ppm). The limit is symmetrical about zero. A value of 0010 (3) corresponds to an alarm limit of +/-11.43 ppm.	0010

Hard Frequency Monitor Threshold Configuration Register

Register (Abbrev): hard_freq_mon_threshold_cnfg Address: 0x81 Type: RW Default Value: 0010_0011							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
3:0	hard_reject_threshold[3:0]		Rejection threshold of reference clocks monitoring. To calculate the limit in ppm, add one to the 4-bit value in the register and multiply by freq_mon_factor in the Frequency Monitor Factor Configuration Register (default 3.81 ppm). The limit is symmetrical about zero. A value of 0011 (3) corresponds to an alarm limit of +/-15.24 ppm.				0011

Soft Frequency Monitor Threshold Configuration Register

Register (Abbrev): soft_freq_mon_threshold_cnfg Address: 0x82, Type: RW Default Value: 0010_0011							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
soft_accept_threshold[3:0]				soft_reject_threshold[3:0]			
Bit	**Name**		**Description**				**Def. Value**
7:4	soft_accept_threshold[3:0]		Accepting threshold of reference clock monitoring. To calculate the limit in ppm, add one to the 4-bit value in the register and multiply by freq_mon_factor in the Frequency Monitor Factor Configuration Register (default 3.81 ppm). The limit is symmetrical about zero. A value of 0010 (2) corresponds to an alarm limit of +/-11.43 ppm.				0010
3:0	soft_reject_threshold[3:0]		Rejection threshold of reference clocks monitoring To calculate the limit in ppm, add one to the 4-bit value in the register, and multiply by freq_mon_factor in the Frequency Monitor Factor Configuration Register (default 3.81 ppm). The limit is symmetrical about zero. A value of 0011 (3) corresponds to an alarm limit of +/-15.24 ppm.				0011

Upper Threshold {0:3} Configuration Register

Register (Abbrev): upper_threshold_{0:3}_cnfg Address: 0x83, 0x87, 0x8B, 0x8F Type: RW Default Value: 0000_0110							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
upper_threshold_{0:3}_cnfg[7:0]							
Bit	**Name**		**Description**				**Def. Value**
7	upper_threshold_{0:3}_cnfg[7:0]		These bits set an upper threshold for the internal leaky bucket accumulator. When the number of the accumulated events is above this threshold (6), a no-activity alarm is raised.				0000_0110

Lower Threshold {0:3} Configuration Register

Register (Abbrev): lower_threshold_{0:3}_cnfg
Address: 0x84, 0x88, 0x8C, 0x90
Type: RW
Default Value: 0000_0100

7	6	5	4	3	2	1	0
lower_threshold_{0:3}_cnfg[7:0]							

Bit	Name	Description	Def. Value
7	lower_threshold_{0:3}_cnfg[7:0]	These bits set a lower threshold for the internal leaky bucket accumulator. When the number of the accumulated events is below this threshold (4), the no-activity alarm is cleared.	0000_0100

Bucket Size {0:3} Configuration Register

Register (Abbrev): bucket_size_{0:3}_cnfg
Address: 0x85, 0x89, 0x8D, 0x91
Type: RW
Default Value: 0000_1000

7	6	5	4	3	2	1	0
bucket_size_{0:3}_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	bucket_size_{0:3}_cnfg[7:0]	These bits set a bucket size for the internal leaky bucket accumulator. If the number of the accumulated events reaches the bucket size (8), the accumulator will stop increasing even if further events are detected.	0000_1000

Decay Rate {0:3} Configuration Register

Register (Abbrev): decay_rate_{0:3}_cnfg
Address: 0x86, 0x8A, 0x8E, 0x92
Type: RW
Default Value: 0000_0001

7	6	5	4	3	2	1	0
reserved						decay_rate_{0:3}_cnfg[1:0]	

Bit	Name	Description	Def. Value
7:2	reserved	reserved	0000_00
1:0	decay_rate_{0:3}_cnfg[1:0]	These bits set a decay rate for the internal leaky bucket accumulator: 00: The accumulator decreases by 1 every 128 ms with no event detected. 01: The accumulator decreases by 1 every 256 ms with no event detected. 10: The accumulator decreases by 1 every 512 ms with no event detected. 11: The accumulator decreases by 1 every 1024 ms with no event detected.	01

Input {1:14} Frequency Read Status Register

Register (Abbrev): in{1:14}_freq_read_sts Address: 0x93, 0x94, 0x95, 0x96, 0x97, 0x98, 0x99, 0x9A, 0x9B, 0x9C, 0x9D, 0x9E, 0x9F, 0xA0 Type: RO Default Value: 0000_0000							
7	6	5	4	3	2	1	0
in{1:14}_freq_value[7:0]							

Bit	Name	Description	Def. Value
7:0	in{1:14}_freq_value[7:0]	This is 8-bit 2's complement signed integer. To calculate the offset in ppm of the selected input, the value should be multiplied by freq_mon_factor in the Frequency Monitor Factor Configuration Register (default 3.81 ppm).	0000_0000

Remote Input Valid Configuration Register [8:1]

Register (Abbrev): remote_input_valid_cnfg[8:1] Address: 0xA1 Type: RW Default Value: 1111_1111							
7	6	5	4	3	2	1	0
remote_in[8:1]_valid							

Bit	Name	Description	Def. Value
7:0	remote_in[8:1]_invalid	0: The corresponding input is allowed. 1: The corresponding input is disallowed.	1

Remote Input Valid Configuration Register [14:9]

Register (Abbrev): remote_input_valid_cnfg[14:9] Address: 0xA2 Type: RW Default Value: 0011_1111							
7	6	5	4	3	2	1	0
reserved		remote_in[14:9]_valid					

Bit	Name	Description	Def. Value
7:6	reserved	reserved	00
5:0	remote_in[14:9]_invalid	0: The corresponding input is allowed. 1: The corresponding input is disallowed.	1

Phase Alarm Time Configuration Register

Register (Abbrev): phase_alarm_time_cnfg
Address: 0xA3
Type: RW
Default Value: 0011_0010

7	6	5	4	3	2	1	0
phase_alarm_multi_factor[1:0]		phase_alarm_time_out_value[5:0]					

Bit	Name	Description	Def. Value
7:6	phase_alarm_multi_factor[1:0]	00: 2 01: 4 10: 8 11: 16	00
5:0	phase_alarm_time_out_value[5:0]	This unsigned 6-bit integer represents the length of time before phase alarm (unlock) will be raised on an input. This time value is the time that the state machine will spend in pre-locked, pre-locked2, or lost-phase modes before setting the phase alarm on the selected input. phase_alarm_multi_factor * phase_alarm_time_out_value= xxx Second	11_0010

Loss of Signal Status Register

Register (Abbrev): los_sts
Address: 0xA4
Type: RO
Default Value: 0000_0000

7	6	5	4	3	2	1	0
los_pin_sts[3:0]				reserved			

Bit	Name	Description	Def. Value
7:4	los_pin_sts[3:0]	Represents los_pin[3:0] status	Determined by LOS[3:0] pins
3:0	reserved	reserved	0000

Input {1:14} Status Register

Register (Abbrev): in{1:14}_sts
Address: 0xA5, 0xA6, 0xA7, 0xA8, 0xA9, 0xAA, 0xAB, 0xAC, 0xAD, 0xAE, 0xAF, 0xB0, 0xB1, 0xB2
Type: RO
Default Value: 0001_0100

7	6	5	4	3	2	1	0
in{1:14}_valid_dpll2	in{1:14}_valid_dpll1	in{1:14}_valid_dpll3	in{1:14}_freq_hard_alarm	in{1:14}_freq_soft_alarm	in{1:14}_activity_alarm	in{1:14}_phase_lock_alarm_dpll2	in{1:14}_phase_lock_alarm_dpll1

Bit	Name	Description	Def. Value
7	in{1:14}_valid_dpll2	Indicates if reference is valid for dpll2. 0: Invalid 1: Valid	0
6	in{1:14}_valid_dpll1	Indicates if reference is valid for dpll1. 0: Invalid 1: Valid	0
5	in{1:14}_valid_dpll3	Indicates if reference is valid for dpll3. 0: Invalid 1: Valid	0
4	in{1:14}_freq_hard_alarm	0: No alarm. 1: The corresponding alarm is set.	1
3	in{1:14}_freq_soft_alarm	0: No alarm. 1: The corresponding alarm is set.	0
2	in{1:14}_activity_alarm	0: No alarm. 1: The corresponding alarm is set.	1
1	in{1:14}_phase_lock_alarm_dpll2	Indicates phase lock alarm for dpll2 0: No alarm. 1: Alarm is set.	0
0	in{1:14}_phase_lock_alarm_dpll1	Indicates phase lock alarm for dpll1 0: No alarm 1: Alarm is set.	0

Input {1:2} LOS Sync Configuration Register

Register (Abbrev): in{1:2}_los_sync_cnfg
Address: 0xB3, 0xB4
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved	in{1:2}_los_en	in{1:2}_los_sel[1:0]		reserved			

Bit	Name	Description	Def. Value
7	reserved	reserved	0

Input {1:2} LOS Sync Configuration Register

Register (Abbrev): in{1:2}_los_sync_cnfg
Address: 0xB3, 0xB4
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
6	in{1:2}_los_en		0: No LOS pin associated with the input 1: Selected LOS pin associated with the input				0
5:4	in{1:2}_los_sel[1:0]		00: LOS0 pin 01: LOS1 pin 10: LOS2 pin 11: LOS3 pin				00
3:0	reserved		reserved				0000

Input {3:14} LOS Sync Configuration Register

Register (Abbrev): in{3:14}_los_sync_cnfg
Address: 0xB5, 0xB6, 0xB7, 0xB8, 0xB9, 0xBA, 0xBB, 0xBC, 0xBD, 0xBE, 0xBF, 0xC0
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved	in{3:14}_los_en	in{3:14}_los_sel[1:0]		in{3:14}_sync_sel[3:0]			

Bit	Name	Description	Def. Value
7	reserved	reserved	0
6	in{3:14}_los_en	0: No LOS pin associated with the input 1: Selected LOS pin associated with the input	0
5:4	in{3:14}_los_sel[1:0]	00: LOS0 pin 01: LOS1 pin 10: LOS2 pin 11: LOS3 pin	00
3:0	in{3:14}_sync_sel[3:0]	Specifies which input is used as a sync when this input is selected as a clock input. 0000: Reserved 0001: IN1 used as sync … 1110: IN14 used as sync 1111: Reserved The frequency of the SYNC must be specified in the DPLL{1:2} Input Mode Configuration Register.	0000

Input 4–1 Sync Phase Configuration Register

Register (Abbrev): in{1:4}_sync_phase_cnfg
Address: 0xC1
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
in4_sync_phase[1:0]		in3_sync_phase[1:0]		in2_sync_phase[1:0]		in1_sync_phase[1:0]	

Bit	Name	Description	Def. Value
7:6	in4_sync_phase[1:0]	These bits set the sampling of the selected SYNC input to synchronize the frame sync output signal. Nominally, the falling edge of SYNC is aligned with the rising edge of the DPLL selected input clock. 00: On target 01: 0.5 UI early 10: 1.0 UI late 11: 0.5 UI late	00
5:4	in3_sync_phase[1:0]	See in4_sync_phase[1:0] description.	00
3:2	in2_sync_phase[1:0]	See in4_sync_phase[1:0] description.	00
1:0	in1_sync_phase[1:0]	See in4_sync_phase[1:0] description.	00

Input 8–5 Sync Phase Configuration Register

Register (Abbrev): in8–5_sync_phase_cnfg
Address: 0xC2
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
in8_sync_phase[1:0]		in7_sync_phase[1:0]		in6_sync_phase[1:0]		in5_sync_phase[1:0]	

Bit	Name	Description	Def. Value
7:6	in8_sync_phase[1:0]	These bits set the sampling of the selected SYNC input to synchronize the frame sync output signal. Nominally, the falling edge of SYNC is aligned with the rising edge of the DPLL selected input clock. 00: On target 01: 0.5 UI early 10: 1 UI late 11: 0.5 UI late	00
5:4	in7_sync_phase[1:0]	See in8_sync_phase[1:0] description.	00
3:2	in6_sync_phase[1:0]	See in8_sync_phase[1:0] description.	00
1:0	in5_sync_phase[1:0]	See in8_sync_phase[1:0] description.	00

Input 12–9 Sync Phase Configuration Register

Register (Abbrev): in12–9_sync_phase_cnfg
Address: 0xC3
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
in12_sync_phase[1:0]		in11_sync_phase[1:0]		in10_sync_phase[1:0]		in9_sync_phase[1:0]	

Bit	Name	Description	Def. Value
7:6	in12_sync_phase[1:0]	These bits set the sampling of the selected SYNC input to synchronize the frame sync output signal. Nominally, the falling edge of YNC is aligned with the rising edge of the DPLL selected input clock. 00: On target. 01: 0.5 UI early. 10: 1 UI late. 11: 0.5 UI late.	00
5:4	in11_sync_phase[1:0]	See in12_sync_phase[1:0] description.	00
3:2	in10_sync_phase[1:0]	See in12_sync_phase[1:0] description.	00
1:0	in9_sync_phase[1:0]	See in12_sync_phase[1:0] description.	00

Input 14–13 Sync Phase Configuration Register

Register (Abbrev): in14–13_sync_phase_cnfg
Address: 0xC4
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved				in14_sync_phase[1:0]		in13_sync_phase[1:0]	

Bit	Name	Description	Def. Value
7:4	reserved	reserved	0000
3:2	in14_sync_phase[1:0]	These bits set the sampling of the selected SYNC input to synchronize the frame sync output signal. Nominally, the falling edge of SYNC is aligned with the rising edge of the DPLL selected input clock. 00: On target 01: 0.5 UI early 10: 1 UI late 11: 0.5 UI late	00
1:0	in13_sync_phase[1:0]		00

Input {3:14} Phase Offset Configuration Register

Register (Abbrev): in{3:14}_phase_offset_cnfg Address: 0xC5, 0xC6, 0xC7, 0xC8, 0xC9, 0xCA, 0xCB, 0xCC, 0xCD, 0xCE, 0xCF, 0xD0 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
in3_phase_offset[7:0]							

Bit	Name	Description	Def. Value
7:0	in3_phase_offset[7:0]	Input-to-output phase offset for INx input. This offset is automatically applied when the input is selected. Value is 2's complement with a resolution of 1 lsb = 0.61 ns.	0000_0000

4.4 DPLL{1:2} Registers

DPLL{1:2} Priority Table Status Register [7:0]

Register (Abbrev): dpll{1:2}_priority_table_sts[7:0] Address: 0x100, 0x180 Type: RO Default Value: 0000_0000							
7	6	5	4	3	2	1	0
dpll{1:2}_highest_valid_ref[3:0]				dpll{1:2}_current_sel_ref[3:0]			

Bit	Name	Description	Def. Value
7:4	dpll{1:2}_highest_valid_ref[3:0]	Indicates the id of the input reference of the first priority and valid. 0000 means no valid input available.	0000
3:0	dpll{1:2}_current_sel_ref[3:0]	Indicates the id of the current selected input reference. 0000 means no valid input available.	0000

DPLL{1:2} Priority Table Status Register [15:8]

Register (Abbrev): dpll{1:2}_priority_table_sts[15:8] Address: 0x101, 0x181 Type: RO Default Value: 0000_0000							
7	6	5	4	3	2	1	0
dpll{1:2}_3rd_valid_ref[3:0]				dpll{1:2}_2nd_valid_ref[3:0]			

Bit	Name	Description	Def. Value
7:4	dpll{1:2}_3rd_valid_ref[3:0]	Indicates the id of the input reference of the third priority and valid. 0000 means no valid input available.	0000
3:0	dpll{1:2}_2nd_valid_ref[3:0]	Indicates the id of the input reference of the second priority and valid. 0000 means no valid input available.	0000

DPLL{1:2} Operating Status Register

Register (Abbrev): dpll{1:2}_operating_sts
Address: 0x102, 0x182
Type: RO
Default Value: 100X_0001

7	6	5	4	3	2	1	0
dpll{1:2}_exsync_mon_alarm	reserved	dpll{1:2}_dpll_soft_alarm	dpll{1:2}_master_slave	dpll{1:2}_dpll_lock	dpll{1:2}_dpll_operating_sts[2:0]		

Bit	Name	Description	Def. Value
7	dpll{1:2}_exsync_mon_alarm	0: No alarm; ex_sync within specification 1: Alarm; ex_sync out of specification	1
6	reserved	reserved	0
5	dpll{1:2}_dpll_soft_alarm	0: No alarm; dpll within “soft threshold” 1: Alarm; dpll out of “soft threshold”	0
4	dpll{1:2}_master_slave	This bit indicates the master/slave value of the MS/SL pin. 0: Slave 1: Master	Determined by MS/SL pin during reset or EEPROM
3	dpll{1:2}_dpll_lock	0: dpll out of phase locked 1: dpll phase locked	0
2:0	dpll{1:2}_dpll_operating_sts[2:0]	000: Not used 001: Free Run 010: Holdover 011: Not used 100: Locked 101: Pre-locked2 110: Pre_locked 111: Phase Lost	001

DPLL{1:2} Current DPLL Frequency Status Register [39:0]

Register (Abbrev): dpll{1:2}_current_dpll_freq_sts[39:0]
Address: 0x103, 0x104, 0x105, 0x106, 0x107
0x183, 0x184, 0x185, 0x186, 0x187
Type: RO
Default Value: 0000_0000

7	6	5	4	3	2	1	0
dpll{1:2}_current_dpll_freq_sts[7:0]							

Bit	Name	Description	Def. Value
7:0	dpll{1:2}_current_dpll_freq_sts[7:0]	This value is 2's complement signed number. Total range is +/-92 ppm, LSB is 1.68e-10 ppm. This value multiplied by 1.68e-10 gives the value in ppm.	0000_0000
	dpll{1:2}_current_dpll_freq_sts[15:8]		
	dpll{1:2}_current_dpll_freq_sts[23:16]		
	dpll{1:2}_current_dpll_freq_sts[31:24]		
	dpll{1:2}_current_dpll_freq_sts[39:32]		

DPLL{1:2} Current DPLL Phase Status Register [19:0]

Register (Abbrev): dpll{1:2}_current_dpll_phase_sts[19:0]
Address: 0x108, 0x109, 0x10A
0x188, 0x189, 0x18A
Type: RO
Default Value: 0000_0000

7	6	5	4	3	2	1	0
dpll{1:2}_current_dpll_phase_sts[7:0]							

Bit	Name	Description	Def. Value
7:0	dpll{1:2}_current_dpll_phase_sts[7:0]	current_dpll_phase_sts[19:0]: current dpll phase error Signed 2's complement number; LSB is 0.61 ns.	0000_0000
7:0	dpll{1:2}_current_dpll_phase_sts[15:8]	current_dpll_phase_sts[19:0]: current dpll phase error Signed 2's complement number; LSB is 0.61 ns.	0000_0000
7:5	reserved	reserved	000
4:0	dpll{1:2}_current_dpll_phase_sts[19:16	current_dpll_phase_sts[19:0]: current dpll phase error Signed 2's complement number; LSB is 0.61 ns.	0_0000

DPLL{1:2} Time of Day Status Nsec Register [31:0]

Register (Abbrev): dpll{1:2}_tod_nsec_sts[31:0]
Address: 0x10B, 0x10C, 0x10D, 0x10E
0x18B, 0x18C, 0x18D, 0x18E
Type: RO
Default Value: 0000_0000

7	6	5	4	3	2	1	0
dpll{1:2}_tod_sts[7:0]							
dpll{1:2}_tod_sts[15:8]							
dpll{1:2}_tod_sts[23:16]							
dpll{1:2}_tod_sts[31:24]							

Bit	Name	Description	Def. Value
7:0	dpll{1:2}_tod_sts[7:0]	Time-of-Day value captured from this DPLL's Time-of-Day accumulator, which tracks the DPLL's 77.76 MHz output. This field is in PTP format: 48 bits for the seconds and 32 bits for the nanoseconds. It is updated each time the event specified by dpll{1:2}_tod_rd_trigger[3:0] occurs.	0000_0000
	dpll{1:2}_tod_sts[15:8]		
	dpll{1:2}_tod_sts[23:16]		
	dpll{1:2}_tod_sts[31:24]		

DPLL{1:2} Time of Day Status Sec Register [79:32]

Register (Abbrev): dpll{1:2}_tod_sec_sts[79:32]
Address: 0x10F, 0x110, 0x111, 0x112, 0x113, 0x114
0x18F, 0x190, 0x191, 0x192, 0x193, 0x194
Type: RO
Default Value: 0000_0000

7	6	5	4	3	2	1	0
dpll{1:2}_tod_sts[39:32]							
dpll{1:2}_tod_sts[47:40]							
dpll{1:2}_tod_sts[55:58]							
dpll{1:2}_tod_sts[63:56]							
dpll{1:2}_tod_sts[71:64]							
dpll{1:2}_tod_sts[79:72]							

Bit	Name	Description	Def. Value
7:0	dpll{1:2}_tod_sts[39:32]	Time-of-Day value captured from this DPLL's Time-of-Day accumulator, which tracks this DPLL's 77.76 MHz output. This field is in PTP format: 48 bits for the seconds and 32 bits for the nanoseconds. It is updated each time the event specified by the dpll{1:2}_tod_rd_trigger[3:0] field occurs.	0000_0000
	dpll{1:2}_tod_sts[47:40]		
	dpll{1:2}_tod_sts[55:58]		
	dpll{1:2}_tod_sts[63:56]		
	dpll{1:2}_tod_sts[71:64]		
	dpll{1:2}_tod_sts[79:72]		

DPLL{1:2} Time of Day Trigger Register

Register (Abbrev): dpll{1:2}_tod_trigger
Address: 0x115, 0x195
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
dpll{1:2}_tod_wr_trigger[3:0]				dpll{1:2}_tod_rd_trigger[3:0]			

Bit	Name	Description	Def. Value
7:4	dpll{1:2}_tod_wr_trigger[3:0]	Sets the condition on which the tod_sts register contents are copied to the Time-of-Day accumulator. This field is cleared (set to “no write”) after the selected condition occurs, so the write occurs once unless re-programmed. 0: No write 1: Rising edge of the input selected by the sync_sel bits of the Input {1:2} LOS Sync Configuration Register and Input {3:14} LOS Sync Configuration Register of the currently-selected input clock 2: Rising edge of in12 3: Rising edge of in13 4: Rising edge of in14 5: Rising edge of internally generated 1 PPS pulse 6: The tick from DPLL{1:2} Timer Interval Register [7:0] and DPLL{1:2} Timer Interval Register [13:8] 7: A write of the most significant byte of the DPLL{1:2} Phase Offset Configuration Register [28:0] 8: A write of the most significant byte of the DPLL{1:2} Holdover Frequency Configuration Register 9: A write of the most significant byte of the *dpll{1:2}_tod_cnfg regsiter Others: Reserved	0000
3:0	dpll{1:2}_tod_rd_trigger[3:0]	Sets the condition on which the Time-of-Day accumulator value is copied to the tod_sts register. This field is not self-clearing, so the tod_sts updates each time the condition occurs, until set to 'no read'. 0: No read 1: Rising edge of the input selected by the sync_sel bits of the Input {1:2} LOS Sync Configuration Register and Input {3:14} LOS Sync Configuration Register of the currently-selected input clock 2: Rising edge of in12 3: Rising edge of in13 4: Rising edge of in14 5: Rising edge of internally generated 1 PPS pulse 6: The tick from timer_interval 7: A write of the most significant byte of the DPLL{1:2} Phase Offset Configuration Register [28:0] register 8: A write of the most significant byte of the DPLL{1:2} Holdover Frequency Configuration Register 9: A read of the least significant byte of the tod_sts register Others: Reserved	0000

DPLL{1:2} Input Mode Configuration Register

Register (Abbrev): dpll{1:2}_input_mode_cnfg
Address: 0x116, 0x196
Type: RW
Default Value: 1010_0000

7	6	5	4	3	2	1	0
dpll{1:2}_auto_extsync_en	dpll{1:2}_extsync_en	dpll{1:2}_ph_alarm_timeout	dpll{1:2}_sync_freq[1:0]		reserved		dpll{1:2}_revertive_mode

Bit	Name	Description	Def. Value
7	dpll{1:2}_auto_extsync_en	0: External Frame Sync enabled/disabled depending on extsync_en bit 1: External Frame Sync enabled if extsync_en = 1 and dpll{1:2} locked to source assigned to SYNC_REF_INPUT	1
6	dpll{1:2}_extsync_en	0: No external Sync signal; EX_SYNC pin is ignored 1: With external Sync signal; EX_SYNC pin is considered	0
5	dpll{1:2}_ph_alarm_timeout	0: Phase alarm on sources only cancelled by software 1: Phase alarms on sources automatically time out. The time out value is defined in the phase_alarm_time_cnfg register.	1
4:3	dpll{1:2}_sync_freq[1:0]	These bits set the frequency of the frame sync signal input on the selected INx pin. 00: 8 kHz 01: 1 pps 10: 4 kHz 11: 2 kHz	00
2:1	reserved	reserved	00
0	dpll{1:2}_revertive_mode	This bit selects Revertive or Non-Revertive switching. 0: Non-Revertive switching. (default) 1: Revertive switching.	0

DPLL{1:2} Monitor Software Register

Register (Abbrev): dpll{1:2}_mon_sw_pbo_cnfg
Address: 0x117, 0x197
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved		dpll{1:2}_ultra_fast_switch	reserved	dpll{1:2}_hitless_switch_freeze	dpll{1:2}_hitless_switch_en	dpll{1:2}_freq_mon_soft_en	dpll{1:2}_freq_mon_hard_en

Bit	Name	Description	Def. Value
7:6	reserved	reserved	00

DPLL{1:2} Monitor Software Register

Register (Abbrev): dpll{1:2}_mon_sw_pbo_cnfg
Address: 0x117, 0x197
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
5	dpll{1:2}_ultra_fast_switch		Bit to enable Ultra-fast switching mode. 0: Currently selected input only disqualified by leaky bucket or frequency monitors 1: Currently selected input disqualified after less than 3 missing input cycles				0
4	reserved		reserved				0
3	dpll{1:2}_hitless_switch_freeze		0: Hitless switch not frozen 1: Hitless switch frozen; no further hitless switching events will occur				0
2	dpll{1:2}_hitless_switch_en		0: Hitless switch disabled 1: Hitless switch enabled				0
1	dpll{1:2}_freq_mon_soft_en		0: Soft frequency monitor alarms disabled 1: Soft frequency monitor alarms enabled				0
0	dpll{1:2}_freq_mon_hard_en		0: Hard frequency monitor alarms disabled 1: Hard frequency monitor alarms enabled				0

DPLL{1:2} Input 1/2 Select Priority Configuration Register

Register (Abbrev): dpll{1:2}_in1_in2_sel_priority_cnfg
Address: 0x118, 0x198
Type: RW
Default Value: 0011_0010

7	6	5	4	3	2	1	0
dpll{1:2}_in2_priority[3:0]				dpll{1:2}_in1_priority[3:0]			

Bit	Name	Description	Def. Value
7:4	dpll{1:2}_in2_priority[3:0]	Sets the priority number of the corresponding input reference. The lower the number, the higher the priority. If set to 0b0000, the corresponding input is disabled for auto or manual ref selection.	0011
3:0	dpll{1:2}_in1_priority[3:0]		0010

DPLL{1:2} Input 3/4 Select Priority Configuration Register

Register (Abbrev): dpll{1:2}_in3_in4_sel_priority_cnfg
Address: 0x119, 0x199
Type: RW
Default Value: 0101_0100

7	6	5	4	3	2	1	0
dpll{1:2}_in4_priority[3:0]				dpll{1:2}_in3_priority[3:0]			

Bit	Name	Description	Def. Value
7:4	dpll{1:2}_in4_priority[3:0]	Sets the priority number of the corresponding input reference. The lower the number is, the higher the priority is. If set to 0b0000, the corresponding input is disabled for auto or manual ref selection.	0101
3:0	dpll{1:2}_in3_priority[3:0]		0100

DPLL{1:2} Input 5/6 Select Priority Configuration Register

Register (Abbrev): dpll{1:2}_in5_in6_sel_priority_cnfg
Address: 0x11A, 0x19A
Type: RW
Default Value: 0111_0110

7	6	5	4	3	2	1	0
dpll{1:2}_in6_priority[3:0]				dpll{1:2}_in5_priority[3:0]			

Bit	Name	Description	Def. Value
7:4	dpll{1:2}_in6_priority[3:0]	Sets the priority number of the corresponding input reference. The lower the number is, the higher the priority is. If set to 0b0000, the corresponding input is disabled for auto or manual ref selection.	0111
3:0	dpll{1:2}_in5_priority[3:0]		0110

DPLL{1:2} Input 7/8 Select Priority Configuration Register

Register (Abbrev): dpll{1:2}_in7_in8_sel_priority_cnfg
Address: 0x11B, 0x19B
Type: RW
Default Value: 1001_1000

7	6	5	4	3	2	1	0

Bit	Name	Description	Def. Value
7:4	dpll{1:2}_in8_priority[3:0]	Sets the priority number of the corresponding input reference. The lower the number is, the higher the priority is. If set to 0b0000, the corresponding input is disabled for auto or manual ref selection.	1001
3:0	dpll{1:2}_in7_priority[3:0]		1000

DPLL{1:2} Input 9/10 Select Priority Configuration Register

Register (Abbrev): dpll{1:2}_in9_in10_sel_priority_cnfg
Address: 0x11C, 0x19C
Type: RW
Default Value: 1011_1010

7	6	5	4	3	2	1	0
dpll{1:2}_in10_priority[3:0]				dpll{1:2}_in9_priority[3:0]			

Bit	Name	Description	Def. Value
7:4	dpll{1:2}_in10_priority[3:0]	Sets the priority number of the corresponding input reference. The lower the number is, the higher the priority is. If set to 0b0000, the corresponding input is disabled for auto or manual ref selection.	1011
3:0	dpll{1:2}_in9_priority[3:0]		1010

DPLL{1:2} Input 11/12 Select Priority Configuration Register

Register (Abbrev): dpll{1:2}_in11_in12_sel_priority_cnfg
Address: 0x11D, 0x19D
Type: RW
Default Value: 1101_1100

7	6	5	4	3	2	1	0
dpll{1:2}_in12_priority[3:0]				dpll{1:2}_in11_priority[3:0]			

Bit	Name	Description	Def. Value
7:4	dpll{1:2}_in12_priority[3:0]	Sets the priority number of the corresponding input reference. The lower the number is, the higher the priority is. If set to 0b0000, the corresponding input is disabled for auto or manual ref selection.	1101
3:0	dpll{1:2}_in11_priority[3:0]		1100

DPLL{1:2} Input 13/14 Select Priority Configuration Register

Register (Abbrev): dpll{1:2}_in13_in14_sel_priority_cnfg
Address: 0x11E, 0x19E
Type: RW
Default Value: 1111_1110

7	6	5	4	3	2	1	0
dpll{1:2}_in14_priority[3:0]				dpll{1:2}_in13_priority[3:0]			

Bit	Name	Description	Def. Value
7:4	dpll{1:2}_in14_priority[3:0]	Sets the priority number of the corresponding input reference. The lower the number is, the higher the priority is. If set to 0b0000, the corresponding input is disabled for auto or manual ref selection.	1111
3:0	dpll{1:2}_in13_priority[3:0]		1110

DPLL{1:2} Input Select Configuration Register

Register (Abbrev): dpll{1:2}_input_sel_cnfg
Address: 0x11F, 0x19F
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved				dpll{1:2}_input_sel[3:0]			

Bit	Name	Description	Def. Value
7:4	reserved	reserved	0000
3:0	dpll{1:2}_input_sel[3:0]	0000: Automatic Input selection 0001: dpll{1:2} forced to select IN1 0010: dpll{1:2} forced to select IN2 0011: dpll{1:2} forced to select IN3 0100: dpll{1:2} forced to select IN4 0101: dpll{1:2} forced to select IN5 0110: dpll{1:2} forced to select IN6 0111: dpll{1:2} forced to select IN7 1000: dpll{1:2} forced to select IN8 1001: dpll{1:2} forced to select IN9 1010: dpll{1:2} forced to select IN10 1011: dpll{1:2} forced to select IN11 1100: dpll{1:2} forced to select IN12 1101: dpll{1:2} forced to select IN13 1110: dpll{1:2} forced to select IN14 1111: Not used	0000

DPLL{1:2} Operating Mode Configuration Register

Register (Abbrev): dpll{1:2}_operating_mode_cnfg
Address: 0x120, 0x1A0
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
dpll{1:2}_comb_mode_sel[1:0]		dpll{1:2}_comb_mode_en	dpll{1:2}_operating_mode_cnfg[4:0]				

Bit	Name	Description	Def. Value
7:6	dpll{1:2}_comb_mode_sel[1:0]	Selects the source for the combined mode frequency value going to dpll2. 0: Phase + frequency offset (same as DCO input value) 1: Frequency offset only 2: Fast averaged frequency (holdover) offset 3: Hold, current value maintained	00

DPLL{1:2} Operating Mode Configuration Register

Register (Abbrev): dpll{1:2}_operating_mode_cnfg
Address: 0x120, 0x1A0
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
5	dpll{1:2}_comb_mode_en		0: Normal dpll mode 1: The frequency value from other dpll integral path is added up to the current dpll				0
4:0	dpll{1:2}_operating_mode_cnfg[4:0]		00000: Automatic 00001: Free Run 00010: Holdover 00100: Locked 00101: Pre-Locked2 00110: Pre-Locked 00111: Phase lost 01010: Write-Frequency, the dpll's loop filter output is replaced by the value from the DPLL{1:2} Holdover Frequency Configuration Register. that is updated by external processor. 10010: Write-Phase, the dpll's phase detector output is replaced with the value from DPLL{1:2} Phase Offset Configuration Register [28:0] that is updated by external processor. Others: Reserved (do not use)				0_0000

DPLL{1:2} Feedback Select Configuration Register

Register (Abbrev): dpll{1:2}_fb_sel_cnfg
Address: 0x121, 0x1A1
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved				dpll{1:2}_fb_sel[3:0]			

Bit	Name	Description	Def. Value
7:4	reserved	reserved	0000

DPLL{1:2} Feedback Select Configuration Register

Register (Abbrev): dpll{1:2}_fb_sel_cnfg
Address: 0x121, 0x1A1
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
3:0	dpll{1:2}_fb_sel[3:0]		0000: Normal internal feedback mode 0001: IN1 used as fb 0010: IN2 used as fb 0011: IN3 used as fb 0100: IN4 used as fb 0101: IN5 used as fb 0110: IN6 used as fb 0111: IN7 used as fb 1000: IN8 used as fb 1001: IN9 used as fb 1010: IN10 used as fb 1011: IN11 used as fb 1100: IN12 used as fb 1101: IN13 used as fb 1110: IN14 used as fb 1111: Reserved				0000

DPLL{1:2} Update Event Configuration Register

Register (Abbrev): dpll{1:2}_update_event_cnfg
Address: 0x122, 0x1A2
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved						dpll{1:2}_update_event_cnfg[1:0]	

Bit	Name	Description	Def. Value
7:2	reserved	reserved	0000_00
1:0	dpll{1:2}_update_event_cnfg[1:0]	00: Internal 1 PPS 01: Input from ex_sync 10: Read/write event of the corresponding registers 11: Event each time internal timer roll-over	00

DPLL1 DPLL Path Configuration Register

Register (Abbrev): dpll1_dpll_path_cnfg Address: 0x123 Type: RW Default Value: 0000_xxxx							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
reserved				dpll1_gsm_obsai_16e1_16t1_sel [1:0]		dpll1_12e1_gps_e3_t3_sel[1:0]	

Bit	Name	Description	Def. Value
7:4	reserved	reserved	0000
3:2	dpll1_gsm_obsai_16e1_16t1_sel [1:0]	These bits select an output clock from the DPLL 16E1/16T1/GSM/OBSAI path. 00: 16E1 = 32.768 MHz (SDH) 01: 16T1 = 24.704 MHz (SONET) 10: GSM = 26.000 MHz 11: OBSAI = 30.720 MHz	0x, where 'x' is determined by SONET/SDH pin during reset
1:0	dpll1_12e1_gps_e3_t3_sel[1:0]	These bits select an output clock from the DPLL 12E1/GPS/E3/T3 path. 00: 12E1 = 24.576 MHz (SDH) 01: GPS = 40.000 MHz (SONET) 10: E3 = 34.368 MHz 11: T3 = 44.736 MHz	0x, where 'x' is determined by SONET/SDH pin during reset

DPLL2 DPLL Path Configuration Register

Register (Abbrev): dpll2_dpll_path_cnfg Address: 0x1A3 Type: RW Default Value: 0000_xxxx							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
reserved				dpll2_gsm_gps_16e1_16t1_sel[1:0]		dpll2_12e1_24t1_e3_t3_sel[1:0]	

Bit	Name	Description	Def. Value
7:4	reserved	reserved	0000
3:2	dpll2_gsm_obsai_16e1_16t1_sel [1:0]	These bits select an output clock from the DPLL 16E1/16T1/GSM/GPS path. 00: 16E1 = 32.768 MHz (SDH) 01: 16T1 = 24.704 MHz (SONET) 10: GSM = 26.000 MHz 11: GPS = 40.000 MHz	0x, where 'x' is determined by SONET/SDH pin during reset

DPLL2 DPLL Path Configuration Register

Register (Abbrev): dpll2_dpll_path_cnfg Address: 0x1A3 Type: RW Default Value: 0000_xxxx							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1:0	dpll{1:2}_12e1_gps_e3_t3_sel[1:0]		These bits select an output clock from the DPLL 12E1/GPS/E3/T3 path. 00: 12E1 = 24.576 MHz (SDH) 01: GPS = 37.056 MHz (SONET) 10: E3 = 34.368 MHz 11: T3 = 44.736 MHz				0x, where 'x' is determined by SONET/SDH pin during reset

DPLL{1:2} DPLL Start Bandwidth Damping Configuration Register

Register (Abbrev): dpll{1:2}_dpll_start_bw_damping_cnfg Address: 0x124, 0x1A4 Type: RW Default Value: 0110_1111							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
dpll{1:2}_dpll_start_damping[2:0]			dpll{1:2}_dpll_start_bw[4:0]				
Bit	**Name**		**Description**				**Def. Value**
7:5	dpll{1:2}_dpll_start_damping[2:0]		000: Reserved 001: 1.2 010: 2.5 011: 5 100: 10 101: 20 110: Reserved 111: Reserved				011

DPLL{1:2} DPLL Start Bandwidth Damping Configuration Register

Register (Abbrev): dpll{1:2}_dpll_start_bw_damping_cnfg
Address: 0x124, 0x1A4
Type: RW
Default Value: 0110_1111

7	6	5	4	3	2	1	0
4:0	dpll{1:2}_dpll_start_bw[4:0]		00000: 0.090 mHz 00001: 0.27 mHz 00010: 0.90 mHz 00011: 2.9 mHz 00100: 4.3 mHz 00101: 8.7 mHz 00110: 17 mHz 00111: 35 mHz 01000: 69 mHz 01001: 92 mHz 01010: 277 mHz 01011: 554 mHz 01100: 1.1 Hz 01101: 2.2 Hz 01110: 4.4 Hz 01111: 8.9 Hz 10000: 18 Hz 10001: 35 Hz 10010: 71 Hz 10011: 142 Hz 10100: 283 Hz 10101: 567 Hz 10110–11111: Reserved				0_1111

DPLL{1:2} DPLL Acquired Bandwidth Damping Configuration Register

Register (Abbrev): dpll{1:2}_dpll_acq_bw_damping_cnfg
Address: 0x125, 0x1A5
Type: RW
Default Value: 0110_1111

7	6	5	4	3	2	1	0
dpll{1:2}_dpll_acq_damping[2:0]			dpll{1:2}_dpll_acq_bw[4:0]				

Bit	Name	Description	Def. Value
7:5	dpll{1:2}_dpll_acq_damping[2:0]	000: Reserved 001: 1.2 010: 2.5 011: 5 100: 10 101: 20 110: Reserved 111: Reserved	011
4:0	dpll{1:2}_dpll_acq_bw[4:0]	00000: 0.090 mHz 00001: 0.27 mHz 00010: 0.90 mHz 00011: 2.9 mHz 00100: 4.3 mHz 00101: 8.7 mHz 00110: 17 mHz 00111: 35 mHz 01000: 69 mHz 01001: 92 mHz 01010: 277 mHz 01011: 554 mHz 01100: 1.1 Hz 01101: 2.2 Hz 01110: 4.4 Hz 01111: 8.9 Hz 10000: 18 Hz 10001: 35 Hz 10010: 71 Hz 10011: 142 Hz 10100: 283 Hz 10101: 567 Hz 10110–11111: Reserved	0_1111

DPLL{1:2} DPLL Locked Bandwidth Configuration Register

Register (Abbrev): dpll{1:2}_dpll_locked_bw_damping_cnfg
Address: 0x126, 0x1A6
Type: RW
Default Value: 0110_1111

7	6	5	4	3	2	1	0
dpll{1:2}_dpll_locked_damping[2:0]			dpll{1:2}_dpll_locked_bw[4:0]				

Bit	Name	Description	Def. Value
7:5	dpll{1:2}_dpll_locked_damping[2:0]	000: Reserved 001: 1.2 010: 2.5 011: 5 100: 10 101: 20 110: Reserved 111: Reserved	011
4:0	dpll{1:2}_dpll_locked_bw[4:0]	00000: 0.090 mHz 00001: 0.27 mHz 00010: 0.90 mHz 00011: 2.9 mHz 00100: 4.3 mHz 00101: 8.7 mHz 00110: 17 mHz 00111: 35 mHz 01000: 69 mHz 01001: 92 mHz 01010: 277 mHz 01011: 554 mHz 01100: 1.1 Hz 01101: 2.2 Hz 01110: 4.4 Hz 01111: 8.9 Hz 10000: 18 Hz 10001: 35 Hz 10010: 71 Hz 10011: 142 Hz 10100: 283 Hz 10101: 567 Hz 10110–11111: Reserved	0_1111

DPLL{1:2} Bandwidth Overshoot Configuration Register

Register (Abbrev): dpll{1:2}_bw_overshoot_cnfg
Address: 0x127, 0x1A7
Type: RW
Default Value: 1100_1111

7	6	5	4	3	2	1	0
dpll{1:2}_pps_freerun_fast_freq_lock_en	dpll{1:2}_pps_freerun_fast_ph_lock_en	dpll{1:2}_pps_holdover_fast_freq_lock_en	dpll{1:2}_pps_holdover_fast_ph_lock_en	dpll{1:2}_auto_bw_sel	dpll{1:2}_t0_ph_limit[2:0]		

Bit	Name	Description	Def. Value
7	dpll{1:2}_pps_freerun_fast_freq_lock_en	0: Disable fast frequency lock of 1 PPS. 1: Enable fast frequency lock mode when the loop start locks to 1 PPS from freerun.	1
6	dpll{1:2}_pps_freerun_fast_ph_lock_en	Enable Phase Snap mode for 1PPS when exiting Freerun. 0: Disable fast phase lock of 1PPS. 1: Enable fast phase lock of 1PPS.	1
5	dpll{1:2}_pps_holdover_fast_freq_lock_en	Enable Frequency Snap mode for 1PPS when exiting Freerun. 0: Disable fast phase lock of 1PPS. 1: Enable fast phase lock mode when the loop relocks to 1PPS from Holdover.	0
4	dpll{1:2}_pps_holdover_fast_ph_lock_en	0: Disable fast phase lock of 1PPS. 1: Enable fast phase lock mode when the loop relocks to 1PPS from Holdover.	0
3	dpll{1:2}_auto_bw_sel	0: Always use locked bandwidth and damping factor. 1: Automatically select among start, acq, and locked bandwidth and damping factor	1
2:0	dpll{1:2}_ph_limit[2:0]	DPLL Phase slope selection. 000: GR-1244 ST3: 61 µs/s 001: GR-1244 ST2, 3E, ST3 (objective): 885 ns/s 010: G.813 opt1, G.8262: 7.5 µs/s 011: No limitation 100: 1 ns/s 101: 5 ns/s 110: 10 ns/s 111: Programmable through the DPLL{1:2} Program Limit Configuration Register [23:0].	111

DPLL{1:2} Phase Loss Coarse Limit Configuration Register

Register (Abbrev): dpll{1:2}_phase_loss_coarse_limit_cnfg
Address: 0x128, 0x1A8
Type: RW
Default Value: 1000_0101

7	6	5	4	3	2	1	0
dpll{1:2}_coarse_phase_loss_limit_en	dpll{1:2}_wide_range_en	dpll{1:2}_multi_phase_app	dpll{1:2}_multi_ph_8k_4k_2k_en	dpll{1:2}_phase_loss_coarse_limit[3:0]			

Bit	Name	Description	Def. Value
7	dpll{1:2}_coarse_phase_loss_limit_en	0: Phase loss not triggered by the coarse phase lock detector 1: Phase loss triggered when the phase error exceeds the limit programmed in phase_loss_coarse_limit [3:0]	1
6	dpll{1:2}_wide_range_en	0: Wide range (coarse) phase detector off 1: Wide range (coarse) phase detector on	0
5	dpll{1:2}_multi_phase_app	0: DPLL phase detector limited to +/-360 degree (+/- 1 UI). However, it will still remember its original phase position over many thousands of UI if wide_range_en is set. 1: DPLL phase detector also uses the full coarse phase detector result.	0
4	dpll{1:2}_multi_ph_8k_4k_2k_en	This bit, together with wide_range_en and ph_loss_coarse_limit[3:0], determines the coarse phase limit when the selected input clock is of 2 kHz, 4 kHz, or 8 kHz. 0: ph_loss_coarse_limit always set to +/-1 UI 1: ph_loss_coarse_limit is set to +/-1 UI if wide_range_en is set to 0. ph_loss_coarse_limit is according to ph_loss_coarse_limit[3:0] if wide_range_en is set to 1.	0
3:0	dpll{1:2}_phase_loss_coarse_limit[3:0]	0000: +/- 1 UI 0001: +/- 3 UI 0010: +/- 7 UI 0011: +/- 15 UI 0100: +/- 31 UI 0101: +/- 63 UI 0110: +/- 127 UI 0111: +/- 255 UI 1000: +/- 511 UI 1001: +/- 1023 UI 1010: +/- 2047 UI (reserved) 1011: +/- 4095 UI (reserved) 1100–1111: +/- 8191 UI (reserved)	0101

DPLL{1:2} Phase Loss Fine Limit Configuration Register

Register (Abbrev): dpll{1:2}_phase_loss_fine_limit_cnfg
Address: 0x129, 0x1A9
Type: RW
Default Value: 1000_0010

7	6	5	4	3	2	1	0
dpll{1:2}_fine_phase_loss_limit_en	dpll{1:2}_fast_loss_switch	reserved			dpll{1:2}_phase_loss_fine_limit[2:0]		

Bit	Name	Description	Def. Value
7	dpll{1:2}_fine_phase_loss_limit_en	0: Disable 1: Enable	1
6	dpll{1:2}_fast_loss_switch	This bit controls whether the occurrence of the fast loss will result in the DPLL unlocked. 0: Does not result in the DPLL unlocked. DPLL will enter Temp-Holdover mode automatically. 1: Results in the DPLL unlocked. DPLL will enter Lost-Phase mode if the DPLL operating mode is set to auto mode.	0
5:3	reserved	reserved	00_0
2:0	dpll{1:2}_phase_loss_fine_limit[2:0]	The limits define the phase loss hysteresis window; +/- phase locked - phase lost. The phase detector error has to be within the phase locked window for 2 seconds before the device indicates phase lock. If it is outside the reject window at any time then fine phase loss is immediately asserted. 000: Do not use. Indicates phase loss continuously 001: +/-45–90°, small phase window for phase lock indication 010: +/-90–180°, normal phase window for phase lock indication 011: +/-180–360° 100: +/-20–25 ns 101: +/- 60–65 ns 110: +/- 120–125 ns 111: +/- 950–955 ns	010

DPLL{1:2} Holdover Mode Configuration Register [7:0]

Register (Abbrev): dpll{1:2}_holdover_mode_cnfg[7:0]
Address: 0x12A, 0x1AA
Type: RW
Default Value: 0000_0001

7	6	5	4	3	2	1	0
reserved				dpll{1:2}_hist_mode[1:0]		dpll{1:2}_avg_mode[1:0]	

Bit	Name	Description	Def. Value
7:4	reserved	reserved	0000

DPLL{1:2} Holdover Mode Configuration Register [7:0]

Register (Abbrev): dpll{1:2}_holdover_mode_cnfg[7:0]
Address: 0x12A, 0x1AA
Type: RW
Default Value: 0000_0001

7	6	5	4	3	2	1	0
3:2	dpll{1:2}_hist_mode[1:0]		00: Current averaged value 01: Averaged value 1 second before 10: Averaged value 10 seconds before 11: Averaged value 60 seconds before				00
1:0	dpll{1:2}_avg_mode[1:0]		Holdover average filter bandwidth (approximate) 00: 0.18 mHz 01: 1.5 mHz 10: 12 mHz 11: 0.5 Hz				01

DPLL{1:2} Holdover Mode Configuration Register [15:8]

Register (Abbrev): dpll{1:2}_holdover_mode_cnfg[15:8]
Address: 0x12B, 0x1AB
Type: RW
Default Value: 0100_0100

7	6	5	4	3	2	1	0
dpll{1:2}_man_holdover	dpll{1:2}_auto_avg	reserved	dpll{1:2}_read_avg	dpll{1:2}_temp_holdover_mode[1:0]		reserved	

Bit	Name	Description	Def. Value
7	dpll{1:2}_man_holdover	0: Holdover frequency is determined automatically, see auto_avg, dpll{1:2}_avg_mode[1:0], and dpll{1:2}_hist_mode[1:0] 1: Holdover frequency is from holdover_freq_cnfg register	0
6	dpll{1:2}_auto_avg	0: Instantaneous value is used as holdover frequency 1: Averaged value is used as holdover frequency	1
5	reserved	reserved	0
4	dpll{1:2}_read_avg	0: The value read from DPLL{1:2} Holdover Frequency Configuration Register is the value written into it. 1: The value read from DPLL{1:2} Holdover Frequency Configuration Register is either the averaged value according to dpll{1:2}_avg_mode[1:0].	0
3:2	dpll{1:2}_temp_holdover_mode[1:0]	00: Temp holdover frequency is the same as holdover mode 01: Temp holdover frequency is using instantaneous value 1x: Temp holdover frequency is using averaged value according to dpll{1:2}_avg_mode[1:0]	01
1:0	reserved	reserved	00

DPLL{1:2} Holdover Frequency Configuration Register

Register (Abbrev): dpll{1:2}_holdover_freq_cnfg[39:0]
Address: 0x12C, 0x12D, 0x12E, 0x12F, 0x130
0x1AC, 0x1AD, 0x1AE, 0x1AF, 0x1B0
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
dpll{1:2}_holdover_freq_cnfg[7:0]							
dpll{1:2}_holdover_freq_cnfg[15:8]							
dpll{1:2}_holdover_freq_cnfg[23:16]							
dpll{1:2}_holdover_freq_cnfg[31:24]							
dpll{1:2}_holdover_freq_cnfg[39:32]							

Bit	Name	Description	Def. Value
7:0	dpll{1:2}_holdover_freq_cnfg[7:0] dpll{1:2}_holdover_freq_cnfg[15:8] dpll{1:2}_holdover_freq_cnfg[23:16] dpll{1:2}_holdover_freq_cnfg[31:24] dpll{1:2}_holdover_freq_cnfg[39:32]	This value is 2's complement signed number. Total range is +/-92 ppm, LSB is 1.6861512e-10 ppm. This value multiplied by 1.6861512e-10 gives the value in ppm. In normal automatic holdover mode, this 40-bit value is read-only, giving the current, calculated, holdover value. In manual holdover mode (man_holdover = 0), this 40-bit value is read-write, setting the Manual Holdover ppm offset. In write-DCO mode (operating_mode_cnfg is set to Write-Frequency), this 40-bit value is read-write, setting the DCO frequency offset from its center value.	0000_0000

DPLL{1:2} DPLL Frequency Soft Limit Configuration Register

Register (Abbrev): dpll{1:2}_dpll_freq_soft_limit_cnfg
Address: 0x131, 0x1B1
Type: RW
Default Value: 1000_1100

7	6	5	4	3	2	1	0
dpll{1:2}_freq_limit_ph_loss	dpll{1:2}_dpll_soft_limit_cnfg[6:0]						

Bit	Name	Description	Def. Value
7	dpll{1:2}_freq_limit_ph_loss	This bit determines whether the DPLL in hard alarm status will result in it unlocked. 0: Disabled 1: Enabled	1
6:0	dpll{1:2}_dpll_soft_limit_cnfg[6:0]	Soft frequency threshold. Unsigned number, LSB is 0.724 ppm, total range is 92 ppm.	000_1100

DPLL{1:2} DPLL Frequency Hard Limit Configuration Register [7:0]

Register (Abbrev): dpll{1:2}_dpll_freq_hard_limit_cnfg[7:0] Address: 0x132, 0x1B2 Type: RW Default Value: 1010_1011							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
dpll{1:2}_dpll_hard_limit_cnfg[7:0]							
Bit	**Name**		**Description**				**Def. Value**
7:0	dpll{1:2}_dpll_hard_limit_cnfg[7:0]		Hard frequency threshold. Unsigned number, LSB is 0.0014 ppm, total range is 92 ppm.				1010_1011

DPLL{1:2} DPLL Frequency Hard Limit Configuration Register [15:8]

Register (Abbrev): dpll{1:2}_dpll_freq_hard_limit_cnfg[15:8] Address: 0x133, 0x183 Type: RW Default Value: 1010_1011							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
dpll{1:2}_dpll_hard_limit_cnfg[15:8]							
Bit	**Name**		**Description**				**Def. Value**
7:0	dpll{1:2}_dpll_hard_limit_cnfg[15:8]		Hard frequency threshold. Unsigned number, LSB is 0.0014 ppm, total range is 92 ppm.				1010_1011

DPLL{1:2} Time of Day Configuration Register [79:0]

Register (Abbrev): dpll{1:2}_tod_cnfg[79:0]
Address: 0x134, 0x135, 0x136, 0x137, 0x138, 0x139, 0x13A, 0x13B, 0x13C, 0x1D
0x1B4, 0x1B5, 0x1B6, 0x1B7, 0x1B8, 0x1B9, 0x1BA, 0x1BB, 0x1BC, 0x1BD
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
dpll{1:2}_tod_cnfg[15:8]							
dpll{1:2}_tod_cnfg[23:16]							
dpll{1:2}_tod_cnfg[31:24]							
dpll{1:2}_tod_cnfg[39:32]							
dpll{1:2}_tod_cnfg[47:40]							
dpll{1:2}_tod_cnfg[55:48]							
dpll{1:2}_tod_cnfg[63:56]							
dpll{1:2}_tod_cnfg[71:64]							
dpll{1:2}_tod_cnfg[79:72]							

Bit	Name	Description	Def. Value
7:0	dpll{1:2}_tod_cnfg[15:8]	Time-of-Day value to be written to Time-of-Day accumulator in order to initialize or re-synchronize it. This field is in PTP format: 48 bits for the seconds and 32 bits for the nanoseconds. For more information, see dpll{1:2}_tod_wr_trigger[3:0].	0000_0000
	dpll{1:2}_tod_cnfg[23:16]		
	dpll{1:2}_tod_cnfg[31:24]		
	dpll{1:2}_tod_cnfg[39:32]		
	dpll{1:2}_tod_cnfg[47:40]		
	dpll{1:2}_tod_cnfg[55:48]		
	dpll{1:2}_tod_cnfg[63:56]		
	dpll{1:2}_tod_cnfg[71:64]		
	dpll{1:2}_tod_cnfg[79:72]		

DPLL{1:2} Frame/Multi-Frame Sync Configuration Register

Register (Abbrev): dpll{1:2}_fr_mfr_sync_cnfg
Address: 0x13E, 0x1BE
Type: RW
Default Value: 0110_0000

7	6	5	4	3	2	1	0
dpll{1:2}_in_2k_4k_8k_inv	dpll{1:2}_8k_1pps_sel	dpll{1:2}_2k_1pps_sel	dpll{1:2}_fr_mfrsync_pul_pos	dpll{1:2}_8k_1pps_inv	dpll{1:2}_frsync_pulse	dpll{1:2}_2k_1pps_inv	dpll{1:2}_mfrsync_pulse

Bit	Name	Description	Def. Value
7	dpll{1:2}_in_2k_4k_8k_inv	This bit determines whether the input clock or sync is inverted. Input must be 1 Hz, 2 kHz, 4 kHz, or 8 kHz. Selected input's in{3:14}_direct_div bit must be 0. 0: Not inverted 1: Inverted	0
6	dpll{1:2}_8k_1pps_sel	This bit determines whether an 8 kHz or a 1 PPS signal is enabled to be output on FRSYNC_8K_1PPS. 0: 1 PPS 1: 8 kHz	1
5	dpll{1:2}_2k_1pps_sel	This bit determines whether a 2 kHz or a 1 PPS signal is enabled to be output on MFRSYNC_2K_1PPS. 0: 1 PPS 1: 2 kHz	1
4	dpll{1:2}_fr_mfrsync_pul_pos	This bit is valid only when FRSYNC_8K_1PPS and/or MFRSYNC_2K_1PPS output 8 kHz and/or 2 kHz pulse respectively; that is, when one of the frsync_pulse bit and the mfrsync_pulse bit is 1, or when the frsync_pulse bit and the mfrsync_pulse are both 1. It determines the pulse position referring to the standard 50:50 duty cycle. 0: Pulsed on the falling edge of the standard 50:50 duty cycle position 1: Pulsed on the rising edge of the standard 50:50 duty cycle position	0
3	dpll{1:2}_8k_1pps_inv	This bit determines whether the output on FRSYNC_8K_1PPS is inverted. 0: Not inverted 1: Inverted	0
2	dpll{1:2}_frsync_pulse	If FRSYNC_8K_1PPS is 8 kHz, then this bit determines whether the output on FRSYNC_8K_1PPS is 50:50 duty cycle or pulsed. 0: 50:50 duty cycle 1: Pulsed. The pulse width is defined by the period of the output on OUT1 (OUT1 should not have any phase adjustment in this case).	0
1	dpll{1:2}_2k_1pps_inv	This bit determines whether the output on MFRSYNC_2K_1PPS is inverted. 0: Not inverted 1: Inverted	0

DPLL{1:2} Frame/Multi-Frame Sync Configuration Register

Register (Abbrev): dpll{1:2}_fr_mfr_sync_cnfg
Address: 0x13E, 0x1BE
Type: RW
Default Value: 0110_0000

7	6	5	4	3	2	1	0
0	dpll{1:2}_mfrsync_pulse		If FRSYNC_2K_1PPs is 2 kHz then this bit determines whether the output on MFRSYNC_2K_1PPS is 50:50 duty cycle or pulsed. 0: 50:50 duty cycle 1: Pulsed. The pulse width is defined by the period of the output on OUT1 (OUT1 should not have any phase adjustment in this case).				0

DPLL{1:2} Sync Monitor Configuration Register

Register (Abbrev): dpll{1:2}_sync_monitor_cnfg
Address: 0x13F, 0x1BF
Type: RW
Default Value: 0010_1011

7	6	5	4	3	2	1	0
dpll{1:2}_sync _bypass	dpll{1:2}_sync_monitor_limit[2:0]			reserved			

Bit	Name	Description	Def. Value
7	dpll{1:2}_sync_bypass	Ex sync enable/disable control 0: ex_sync is enabled or not is determined by dpll{1:2}_auto_extsync_en and dpll{1:2}_extsync_en. 1: ex_sync is enabled if no ex_sync_alarm	0
6:4	dpll{1:2}_sync_monitor_limit[2:0]	These bits set the limit for the external sync alarm. 000: Sync alarm raised beyond +/- 1 UI 001: Sync alarm raised beyond +/- 2 UI 010: Sync alarm raised beyond +/- 3 UI 011: Sync alarm raised beyond +/- 4 UI 100: Sync alarm raised beyond +/- 5 UI 101: Sync alarm raised beyond +/- 6 UI 110: Sync alarm raised beyond +/- 7 UI 111: Sync alarm raised beyond +/- 8 UI	010
3:0	reserved	reserved	1011

DPLL{1:2} Sync Edge Configuration Register

Register (Abbrev): dpll{1:2}_sync_edge_cnfg
Address: 0x140, 0x1C0
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved						dpll{1:2}_sync_tod	dpll{1:2}_sync_edge

Bit	Name	Description	Def. Value
7:2	reserved	reserved	0000_00
1	dpll{1:2}_sync_tod	The dpll{1:2}_sync_tod bit controls the source of alignment of the output dividers from this DPLL. 0: The output is aligned to the divided clock from the input. See in{3:14}_cnfg:: in{3:14}_freq[3:0] for the valid frequencies after the divider including a clock input of 1 PPS (1Hz) with a bypassed divider. 1: The alignment comes from the 1 PPS rollover of the TOD counter. For a PTP channel, this bit should be set to 1.	0
0	dpll{1:2}_sync_edge	This bit sets the alignment of the external sync inputs (falling or rising edge)	0

DPLL{1:2} Phase Offset Configuration Register [28:0]

Register (Abbrev): dpll{1:2}_phase_offset_cnfg[28:0]
Address: 0x143, 0x144, 0x145, 0x146
0x1C3, 0x1C4, 0x1C5, 0x1C6
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
dpll{1:2}_phase_offset_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	dpll{1:2}_phase_offset_cnfg[7:0]	2's complement number, LSB is 0.0745 ps. Total range is ±20 µs.	0000_0000
	dpll{1:2}_phase_offset_cnfg[15:8]	2's complement number, LSB is 0.0745 ps. Total range is ±20 µs.	
	dpll{1:2}_phase_offset_cnfg[23:16]	2's complement number, LSB is 0.0745 ps. Total range is ±20 µs.	
7	dpll{1:2}_ph_offset_en	This bit determines whether the input-to-output phase offset is enabled. If the device is configured as the master, the input-to-output phase offset depends on this bit. 0: Disabled 1: Enabled If the device is configured as the slave, the input-to-output phase offset is always enabled.	0
6:5	reserved	reserved	00

DPLL{1:2} Phase Offset Configuration Register [28:0]

Register (Abbrev): dpll{1:2}_phase_offset_cnfg[28:0]
Address: 0x143, 0x144, 0x145, 0x146
0x1C3, 0x1C4, 0x1C5, 0x1C6
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
4:0	dpll{1:2}_phase_offset_cnfg[28:24]		2's complement number, LSB is 0.0745 ps. Total range is ±20 µs.				0_0000

DPLL{1:2} Timer Interval Register [7:0]

Register (Abbrev): dpll{1:2}_timer_interval[7:0]
Address: 0x147, 0x1C7
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
dpll{1:2}_timer_interval[7:0]							

Bit	Name	Description	Def. Value
7:0	dpll{1:2}_timer_interval[7:0]	When dpll{1:2}_tod_wr_trigger[3:0] or dpll{1:2}_tod_rd_trigger[3:0] specifies “timer_interval,” the contents of this field are in effect and the Time-of-Day accumulator can be written or captured on this interval. This field specifies time interval from 1 ms to 16383 ms, in multiples of 1 ms.	0000_0000

DPLL{1:2} Timer Interval Register [13:8]

Register (Abbrev): dpll{1:2}_timer_interval[13:8]
Address: 0x148, 0x1C8
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved		dpll{1:2}_timer_interval[13:8]					

Bit	Name	Description	Def. Value
7:6	reserved	reserved	00
5:0	dpll{1:2}_timer_interval[13:8]	When dpll{1:2}_tod_wr_trigger[3:0] or dpll{1:2}_tod_rd_trigger[3:0] specifies “timer_interval,” the contents of this field are in effect and the Time-of-Day accumulator can be written or captured on this interval. This field specifies time interval from 1 ms to 16383 ms, in multiples of 1 ms.	00_0000

DPLL{1:2} System Time Status Register

Register (Abbrev): dpll{1:2}_sys_time_sts[31:0]
Address: 0x149, 0x14A, 0x14B, 0x14C
0x1C9, 0x1CA, 0x1CB, 0x1CC
Type: RO
Default Value: 0000_0000

7	6	5	4	3	2	1	0
dpll{1:2}_sys_time_sts[7:0]							
dpll{1:2}_sys_time_sts[15:8]							
dpll{1:2}_sys_time_sts[23:16]							
dpll{1:2}_sys_time_sts[31:24]							

Bit	Name	Description	Def. Value
7:0	dpll{1:2}_sys_time_sts[7:0] dpll{1:2}_sys_time_sts[15:8] dpll{1:2}_sys_time_sts[23:16] dpll{1:2}_sys_time_sts[31:24]	A rollover counter acting as a System Timer, tracking the input xtal frequency. Counts at 204.8 MHz (1/8 of the 1.6348 GHz system clock). Sampled at the same time as the Time-of-Day accumulator (see dpll{1:2}_tod_rd_trigger[3:0]).	0000_0000

DPLL{1:2} Bandwidth Software Time 1 Configuration Register

Register (Abbrev): dpll{1:2}_bw_sw_time1_cnfg
Address: 0x14D, 0x1CD
Type: RW
Default Value: 0000_0010

7	6	5	4	3	2	1	0
dpll{1:2}_bw_sw_time1_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	dpll{1:2}_bw_sw_time1_cnfg[7:0]	First settling time for the DPLL when switching from a higher bandwidth to lower bandwidth. When switching to a DPLL loop bandwidth that is larger than 35 Hz, and less than or equal to 554 Hz, the time in seconds it takes to transition to the new bandwidth is dictated by this register value. Time = bw_switch_time1_cnfg * 1 second Note: When switching from a smaller to a larger bandwidth, or when switching to a bandwidth greater than 554 Hz, switching happens immediately without settling time.	0000_0010

DPLL{1:2} Bandwidth Software Time 2 Configuration Register

Register (Abbrev): dpll{1:2}_bw_sw_time2_cnfg Address: 0x14E, 0x1CE Type: RW Default Value: 0010_0000							
7	6	5	4	3	2	1	0
dpll{1:2}_bw_sw_time2_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	dpll{1:2}_bw_sw_time2_cnfg[7:0]	Second settling time for the DPLL when switching from a higher bandwidth to lower bandwidth. When switching to a DPLL loop bandwidth that is larger than 2.9 Hz, and less than or equal to 35 Hz, the time in seconds it takes to transition to the new bandwidth is dictated by this register value. Time = register value * 1 second	0010_0000

DPLL{1:2} Bandwidth Software Time 3 Configuration Register

Register (Abbrev): dpll{1:2}_bw_sw_time3_cnfg Address: 0x14F, 0x1CF Type: RW Default Value: 0100_0000							
7	6	5	4	3	2	1	0
dpll{1:2}_bw_sw_time3_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	dpll{1:2}_bw_sw_time3_cnfg[7:0]	Third settling time for the DPLL when switching from a higher bandwidth to lower bandwidth. When switching to a DPLL loop bandwidth that is less than or equal to 2.9 Hz, the time in seconds it takes to transition to the new bandwidth is dictated by this register value. Time = register value * 4 seconds Note: The resolution here is different than the previous two registers, it is in steps of 4 seconds.	0100_0000

DPLL{1:2} Slave Force Reference Select Configuration Register

Register (Abbrev): dpll{1:2}_slave_force_ref_sel_cnfg
Address: 0x150, 0x1D0
Type: RW
Default Value: 0000_1011

7	6	5	4	3	2	1	0
reserved				dpll{1:2}_slave_force_ref_sel_cnfg[3:0]			

Bit	Name	Description	Def. Value
7:4	reserved	reserved	0000
3:0	dpll{1:2}_slave_force_ref_sel_cnfg[3:0]	In slave mode, this 4-bit register determines which input reference will be force selected as DPLL's reference. 0000: Reserved 0001: dpll forced to select IN1 0010: dpll forced to select IN2 0011: dpll forced to select IN3 0100: dpll forced to select IN4 0101: dpll forced to select IN5 0110: dpll forced to select IN6 0111: dpll forced to select IN7 1000: dpll forced to select IN8 1001: dpll forced to select IN9 1010: dpll forced to select IN10 1011: dpll forced to select IN11 1100: dpll forced to select IN12 1101: dpll forced to select IN13 1110: dpll forced to select IN14 1111: Reserved	1011

DPLL{1:2} Program Limit Configuration Register [23:0]

Register (Abbrev): dpll{1:2}_prog_ph_limit_cnfg[23:0] Address: 0x151, 0x152, 0x153 0x1D1, 0x1D2, 0x1D3 Type: RW Default Value: 0000_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
dpll{1:2}_prog_ph_limit_cnfg[7:0]							
dpll{1:2}_prog_ph_limit_cnfg[15:8]							
dpll{1:2}_prog_ph_limit_cnfg[23:16]							

Bit	Name	Description	Def. Value
7:0	dpll{1:2}_prog_ph_limit_cnfg[7:0] dpll{1:2}_prog_ph_limit_cnfg[15:8] dpll{1:2}_prog_ph_limit_cnfg[23:16]	Programmable phase slope limit value, 2's complement, resolution 1 lsb = 88 ps/s	0000_0000

4.5 DPLL3 Registers

DPLL3 Priority Table Status Register [7:0]

Register (Abbrev): dpll3_priority_table_sts[7:0] Address: 0x200 Type: RO Default Value: 0000_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
dpll3_highest_valid_ref[3:0]				dpll3_current_sel_ref[3:0]			

Bit	Name	Description	Def. Value
7:4	dpll3_highest_valid_ref[3:0]	Indicates the id of the input reference of the highest priority and valid.	0000
3:0	dpll3_current_sel_ref[3:0]	Indicates the id of the current selected input reference.	0000

DPLL3 Priority Table Status Register [15:8]

Register (Abbrev): dpll3_priority_table_sts[15:8]
Address: 0x201
Type: RO
Default Value: 0000_0000

7	6	5	4	3	2	1	0
dpll3_3rd_valid_ref[3:0]				dpll3_2nd_valid_ref[3]			

Bit	Name	Description	Def. Value
7:4	dpll3_3rd_valid_ref[3:0]	3rd_valid_ref[3:0]. Indicates the id of the input reference of the 3rd priority and valid.	0000
3:0	dpll3_2nd_valid_ref[3]	2nd_valid_ref[3:0]. Indicates the id of the input reference of the 2nd priority and valid.	0000

DPLL3 Operating Status Register

Register (Abbrev): dpll3_operating_sts
Address: 0x202
Type: RO
Default Value: 0000_0001

7	6	5	4	3	2	1	0
reserved			reserved	dpll3_dpll_lock	dpll3_dpll_operating_sts[2:0]		

Bit	Name	Description	Def. Value
7:6	reserved	reserved	00
5	dpll3_dpll_soft_alarm	0: DPLL output within dpll3_dpll_soft_limit_cnfg[6:0] 1: DPLL output exceeds dpll3_dpll_soft_limit_cnfg[6:0]	0
4	reserved	reserved	0
3	dpll3_dpll_lock	0: DPLL out of phase locked 1: DPLL phase locked	0
2:0	dpll3_dpll_operating_sts[2:0]	000: Not used 001: Free run 010: Holdover 100: Lock Others: Not used	001

DPLL3 Input Mode Configuration Register

Register (Abbrev): dpll3_input_mode_cnfg
Address: 0x216
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved							dpll3_revertive_mode

Bit	Name	Description	Def. Value
7:1	reserved	reserved	0000_000
0	dpll3_revertive_mode	0: Non-revertive switching 1: Revertive switching	0

DPLL3 Monitor Configuration Register

Register (Abbrev): dpll3_mon_cnfg
Address: 0x217
Type: RW
Default Value: 0000_0001

7	6	5	4	3	2	1	0
reserved						dpll3_freq_mon_soft_en	dpll3_freq_mon_hard_en

Bit	Name	Description	Def. Value
7:2	reserved	reserved	0000_00
1	dpll3_freq_mon_soft_en	0: Disable soft frequency monitor alarms 1: Enable soft frequency monitor alarms	0
0	dpll3_freq_mon_hard_en	0: Disable hard frequency monitor alarms 1: Enable hard frequency monitor alarms	1

DPLL3 Input 1/2 Select Priority Configuration Register

Register (Abbrev): dpll3_in1_in2_sel_priority_cnfg
Address: 0x218
Type: RW
Default Value: 0011_0010

7	6	5	4	3	2	1	0
dpll3_in2_priority[3:0]				dpll3_in1_priority[3:0]			

Bit	Name	Description	Def. Value
7:4	dpll3_in2_priority[3:0]	Sets the priority number of the corresponding input reference. The lower the number, the higher the priority. If set to 0000, the corresponding input is disable for auto ref selection.	0011
3:0	dpll3_in1_priority[3:0]		0010

DPLL3 Input 3/4 Select Priority Configuration Register

Register (Abbrev): dpll3_in3_in4_sel_priority_cnfg
Address: 0x219
Type: RW
Default Value: 0101_0100

7	6	5	4	3	2	1	0
dpll3_in4_priority[3:0]				dpll3_in3_priority[3:0]			

Bit	Name	Description	Def. Value
7:4	dpll3_in4_priority[3:0]	Sets the priority number of the corresponding input reference. The lower the number, the higher the priority. If set to 0000, the corresponding input is disable for auto ref selection.	0101
3:0	dpll3_in3_priority[3:0]		0100

DPLL3 Input 5/6 Select Priority Configuration Register

Register (Abbrev): dpll3_in5_in6_sel_priority_cnfg
Address: 0x21A
Type: RW
Default Value: 0111_0110

7	6	5	4	3	2	1	0
dpll3_in6_priority[3:0]				dpll3_in5_priority[3:0]			

Bit	Name	Description	Def. Value
7:4	dpll3_in6_priority[3:0]	Sets the priority number of the corresponding input reference. The lower the number, the higher the priority. If set to 0000, the corresponding input is disable for auto ref selection.	0111
3:0	dpll3_in5_priority[3:0]		0110

DPLL3 Input 7/8 Select Priority Configuration Register

Register (Abbrev): dpll3_in7_in8_sel_priority_cnfg
Address: 0x21B
Type: RW
Default Value: 1001_1000

7	6	5	4	3	2	1	0
dpll3_in8_priority[3:0]				dpll3_in7_priority[3:0]			

Bit	Name	Description	Def. Value
7:4	dpll3_in8_priority[3:0]	Sets the priority number of the corresponding input reference. The lower the number, the higher the priority. If set to 0000, the corresponding input is disable for auto ref selection.	1001
3:0	dpll3_in7_priority[3:0]		1000

DPLL3 Input 9/10 Select Priority Configuration Register

Register (Abbrev): dpll3_in9_in10_sel_priority_cnfg
Address: 0x21C
Type: RW
Default Value: 1011_1010

7	6	5	4	3	2	1	0
dpll3_in10_priority[3:0]				dpll3_in9_priority[3:0]			

Bit	Name	Description	Def. Value
7:4	dpll3_in10_priority[3:0]	Sets the priority number of the corresponding input reference. The lower the number, the higher the priority. If set to 0000, the corresponding input is disable for auto ref selection.	1011
3:0	dpll3_in9_priority[3:0]		1010

DPLL3 Input 11/12 Select Priority Configuration Register

Register (Abbrev): dpll3_in11_in12_sel_priority_cnfg
Address: 0x21D
Type: RW
Default Value: 1101_1100

7	6	5	4	3	2	1	0
dpll3_in12_priority[3:0]				dpll3_in11_priority[3:0]			

Bit	Name	Description	Def. Value
7:4	dpll3_in12_priority[3:0]	Sets the priority number of the corresponding input reference. The lower the number, the higher the priority. If set to 0000, the corresponding input is disable for auto ref selection.	1101
3:0	dpll3_in11_priority[3:0]		1100

DPLL3 Input 13/14 Select Priority Configuration Register

Register (Abbrev): dpll3_in13_in14_sel_priority_cnfg
Address: 0x21E
Type: RW
Default Value: 1111_1110

7	6	5	4	3	2	1	0
dpll3_in14_priority[3:0]				dpll3_in13_priority[3:0]			

Bit	Name	Description	Def. Value
7:4	dpll3_in14_priority[3:0]	Sets the priority number of the corresponding input reference. The lower the number, the higher the priority. If set to 0000, the corresponding input is disable for auto ref selection.	1111
3:0	dpll3_in13_priority[3:0]		1110

DPLL3 Input Select Configuration Register

Register (Abbrev): dpll3_input_sel_cnfg
Address: 0x21F
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved				dpll3_input_sel[3:0]			

Bit	Name	Description	Def. Value
7:4	reserved	reserved	0000
3:0	dpll3_input_sel[3:0]	0000: Automatic input selection 0001: DPLL3 forced to select IN1 0010: DPLL3 forced to select IN2 0011: DPLL3 forced to select IN3 0100: DPLL3 forced to select IN4 0101: DPLL3 forced to select IN5 0110: DPLL3 forced to select IN6 0111: DPLL3 forced to select IN7 1000: DPLL3 forced to select IN8 1001: DPLL3 forced to select IN9 1010: DPLL3 forced to select IN10 1011: DPLL3 forced to select IN11 1100: DPLL3 forced to select IN12 1101: DPLL3 forced to select IN13 1110: DPLL3 forced to select IN14 1111: Reserved	0000

DPLL3 Operating Mode Configuration Register

Register (Abbrev): dpll3_operating_mode_cnfg
Address: 0x220
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved					dpll3_operating_mode_cnfg[2:0]		

Bit	Name	Description	Def. Value
7:3	reserved	reserved	0000_0
2:0	dpll3_operating_mode_cnfg[2:0]	000: Automatic 001: Free run 010: Holdover 100: Lock Others: Not used	000

DPLL3 DPLL Locked Bandwidth Damping Configuration Register

Register (Abbrev): dpll3_dpll_locked_bw_damping_cnfg
Address: 0x226
Type: RW
Default Value: 0110_0000

7	6	5	4	3	2	1	0
dpll3_dpll_locked_damping[2:0]			reserved			dpll3_dpll_locked_bw[1:0]	

Bit	Name	Description	Def. Value
7:5	dpll3_dpll_locked_damping[2:0]	000: Reserved 001: 1.2 010: 2.5 011: 5 100: 10 101: 20 110–111: Reserved	011
4:2	reserved	reserved	0_00
1:0	dpll3_dpll_locked_bw[1:0]	Sets the loop bandwidth for DPLL3 in locked state. The bandwidth varies inversely with DivN (see DPLL3 Divisor N Interrupt Configuration Register). Locked frequency is also constrained by dpll3_hard_freq_limit_cnfg. 00: 25–52 Hz 01: 54–120 Hz 10: 74–150 Hz 11: Reserved	00

Reserved

Register (Abbrev): N/A
Address: 0x227
Type: RW
Default Value: 0000_0011

7	6	5	4	3	2	1	0
reserved							

Bit	Name	Description	Def. Value
7:0	reserved	reserved	0000_0011

DPLL3 Phase Loss Coarse Limit Register

Register (Abbrev): dpll3_phase_loss_coarse_limit_cnfg
Address: 0x228
Type: RW
Default Value: 1000_0101

7	6	5	4	3	2	1	0
dpll3_coarse_phase_loss_limit_en	dpll3_wide_range_en	dpll3_multi_phase_app	dpll3_multi_ph_8k_4k_2k_en	dpll3_phase_loss_coarse_limit[3:0]			

Bit	Name	Description	Def. Value
7	dpll3_coarse_phase_loss_limit_en	0: Phase loss not triggered by the coarse phase lock detector 1: Phase loss triggered when the phase error exceeds the limit programmed in phase_loss_coarse_limit [3:0]	1
6	dpll3_wide_range_en	0: Wide range phase detector off 1: Wide range phase detector on	0
5	dpll3_multi_phase_app	0: DPLL phase detector limited to +/-360 degree (+/- 1 UI). However, it will still remember its original phase position over many thousands of UI if wide_range_en is set. 1: DPLL phase detector also uses the full coarse phase detector result.	0
4	dpll3_multi_ph_8k_en	This bit, together with the wide_range_en and the ph_loss_coarse_limit[3:0] bits, determines the coarse phase limit when the selected input clock is of 8 kHz. 0: ph_loss_coarse_limit always set to +/-1 UI 1: ph_loss_coarse_limit is set to +/-1 UI if wide_range_en is set to 0. ph_loss_coarse_limit is according to ph_loss_coarse_limit[3:0] if wide_range_en is set to 1.	0
3:0	dpll3_phase_loss_coarse_limit[3:0]	0000: +/- 1 UI 0001: +/- 3 UI 0010: +/- 7 UI 0011: +/- 15 UI 0100: +/- 31 UI 0101: +/- 63 UI 0110: +/- 127 UI 0111: +/- 255 UI 1000: +/- 511 UI 1001: +/- 1023 UI 1010–1111: Reserved	0101

DPLL3 Phase Loss Fine Limit Configuration Register

Register (Abbrev): dpll3_phase_loss_fine_limit_cnfg
Address: 0x229
Type: RW
Default Value: 1000_0010

7	6	5	4	3	2	1	0
dpll3_fine_phase_loss_limit_en	reserved				dpll3_phase_loss_fine_limit[2:0]		

Bit	Name	Description	Def. Value
7	dpll3_fine_phase_loss_limit_en	0: Disable 1: Enable	1
6:3	reserved	reserved	000_0
2:0	dpll3_phase_loss_fine_limit[2:0]	000: Do not use; indicates phase loss continuously 001: +/-45–90°, small phase window for phase lock indication 010: +/-90–180°, normal phase window for phase lock indication 011: +/-180–360° 100: +/-20–25 ns 101: +/- 60–65 ns 110: +/- 120–125 ns 111: +/- 950–955 ns Larger phase window for phase lock indication. The phase position of the inputs to the DPLL has to be within the window limit for 1–2 seconds before the device indicates phase lock. If it is outside the window for any time, then phase loss is indicated immediately.	010

DPLL3 Holdover Mode Configuration Register

Register (Abbrev): dpll3_holdover_mode_cnfg
Address: 0x22B
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved	dpll3_auto_avg	reserved					

Bit	Name	Description	Def. Value
7	reserved	reserved	0
6	dpll3_auto_avg	0: Holdover frequency is the instantaneous value of integral path just before entering holdover 1: Averaged frequency value is used as holdover frequency	0
5:0	reserved	reserved	00_0000

DPLL3 DPLL Frequency Soft Limit Configuration Register

Register (Abbrev): dpll3_dpll_freq_soft_limit_cnfg
Address: 0x231
Type: RW
Default Value: 1000_1100

7	6	5	4	3	2	1	0
dpll3_freq_limit_ph_loss	dpll3_dpll_soft_limit_cnfg[6:0]						

Bit	Name	Description	Def. Value
7	dpll3_freq_limit_ph_loss	Determines whether the DPLL in hard alarm status will result in it unlocked. 0: Disabled 1: Enabled	1
6:0	dpll3_dpll_soft_limit_cnfg[6:0]	Soft frequency threshold, unsigned number. If the output frequency of DPLL3 exceeds this limit, dpll3_dpll_soft_alarm will be high. Resolution is inversely related to DivN (see dpll3_divn_int_cnfg[5:0] and is given by the equation: LSB = (2 /DivN) * 1/2^16 = 2 * dpll3_fout/1.6384 GHz * 1/2^16 Default: LSB = 2 * 98.304 MHz / 1 638.4 MHz * 1/2^16 = 1.83 ppm Max range = +/-234 ppm	000_1100

DPLL3 DPLL Frequency Hard Limit Configuration Register [7:0]

Register (Abbrev): dpll3_dpll_freq_hard_limit_cnfg[7:0]
Address: 0x232
Type: RW
Default Value: 1010_1011

7	6	5	4	3	2	1	0
dpll3_dpll_hard_limit_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	dpll3_dpll_hard_limit_cnfg[7:0]	Hard frequency threshold; unsigned number. The output frequency of DPLL3 will not exceed the limit set by this register. Resolution is inversely related to DivN (see dpll3_divn_int_cnfg[5:0]) and is given by the equation: LSB = (2 /DivN) * 1/2^25 = 2 * dpll3_fout/1.6384 GHz * 1/2^25 Default: LSB = 2 * 98.304 MHz / 1 638.4 MHz * 1/2^25 = 3.57 ppb Max range = +/-234 ppm	1010_1011

DPLL3 DPLL Frequency Hard Limit Configuration Register [15:8]

Register (Abbrev): dpll3_dpll_freq_hard_limit_cnfg[15:8] Address: 0x233 Type: RW Default Value: 0001_1001							
7	6	5	4	3	2	1	0
dpll3_dpll_hard_limit_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	dpll3_dpll_hard_limit_cnfg[15:8]	Hard frequency threshold; unsigned number. The output frequency of DPLL3 will not exceed the limit set by this register. Resolution is inversely related to DivN (see dpll3_divn_int_cnfg[5:0]) and is given by the equation: LSB = (2 /DivN) * 1/2^25 = 2 * dpll3_fout/1.6384 GHz * 1/2^25 Default: LSB = 2 * 98.304 MHz / 1 638.4 MHz * 1/2^25 = 3.57 ppb Max range = +/-234 ppm	0001_1001

DPLL3 Feedback Divisor Configuration Register [7:0]

Register (Abbrev): dpll3_fbdiv_cnfg[7:0] Address: 0x250 Type: RW Default Value: 1111_1111							
7	6	5	4	3	2	1	0
dpll3_fbdiv_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	dpll3_fbdiv_cnfg[7:0]	DPLL3 integer feedback divider ratio. The DPLL3 output frequency is divided by the this value plus 1 to give the 8 kHz feedback required by DPLL3. fout_dpll3 = (fbdiv_cnfg + 1) * 8 kHz (The output frequency of DPLL3 here must agree with the setting of DivN; see dpll3_divn_int_cnfg[5:0].) Default: fout_dpll3 = (x2FFF + 1) * 8kHz = 98.304 MHz	1111_1111

DPLL3 Feedback Divisor Configuration Register [13:8]

Register (Abbrev): dpll3_fbdiv_cnfg[13:8]
Address: 0x251
Type: RW
Default Value: 0010_1111

7	6	5	4	3	2	1	0
reserved		dpll3_fbdiv_cnfg[13:8]					

Bit	Name	Description	Def. Value
7:6	reserved	reserved	00
5:0	dpll3_fbdiv_cnfg[13:8]	DPLL3 integer feedback divider ratio. The DPLL3 output frequency is divided by the this value plus 1 to give the 8 kHz feedback required by DPLL3. fout_dpll3 = (fbdiv_cnfg + 1) * 8 kHz (The output frequency of DPLL3 here must agree with the setting of DivN; see dpll3_divn_int_cnfg[5:0].) Default: fout_dpll3 = (x2FFF + 1) * 8kHz = 98.304 MHz	10_1111

DPLL3 Divisor N Fractional L Configuration Register

Register (Abbrev): dpll3_divn_frac_l_cnfg
Address: 0x252
Type: RW
Default Value: 0101_0101

7	6	5	4	3	2	1	0
dpll3_divn_frac_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	dpll3_divn_frac_cnfg[7:0]	divn_frac_cnfg[23:0]: Fractional part of dpll3 output divisor; Unsigned	0101_0101

DPLL3 Divisor N Fractional M Configuration Register

Register (Abbrev): dpll3_divn_frac_m_cnfg
Address: 0x253
Type: RW
Default Value: 0101_0101

7	6	5	4	3	2	1	0
dpll3_divn_frac_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	dpll3_divn_frac_cnfg[15:8]	divn_frac_cnfg[23:0]: Fractional part of dpll3 output divisor; Unsigned	0101_0101

DPLL3 Divisor N Fractional H Configuration Register

Register (Abbrev): dpll3_divn_frac_h_cnfg Address: 0x254 Type: RW Default Value: 0001_0101							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
reserved			dpll3_divn_frac_cnfg[20:16]				
Bit	**Name**		**Description**				**Def. Value**
7:5	reserved		reserved				000
4:0	dpll3_divn_frac_cnfg[20:16]		divn_frac_cnfg[23:0]: Fractional part of dpll3 output divisor; Unsigned				1_0101

DPLL3 Divisor N Denominator L Configuration Register

Register (Abbrev): dpll3_divn_den_l_cnfg Address: 0x255 Type: RW Default Value: 0000_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
dpll3_divn_den_cnfg[7:0]							
Bit	**Name**		**Description**				**Def. Value**
7:0	dpll3_divn_den_cnfg[7:0]		divn_den_cnfg[15:0]: Fractional part of dpll3 output divisor, denominator; Unsigned				0000_0000

DPLL3 Divisor N Denominator H Configuration Register

Register (Abbrev): dpll3_divn_den_h_cnfg Address: 0x256 Type: RW Default Value: 0011_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
dpll3_divn_den_cnfg[15:8]							
Bit	**Name**		**Description**				**Def. Value**
7:0	dpll3_divn_den_cnfg[15:8]		divn_den_cnfg[15:0]: Fractional part of dpll3 output divisor, denominator; Unsigned				0011_0000

DPLL3 Divisor N Numerator L Configuration Register

Register (Abbrev): dpll3_divn_num_l_cnfg Address: 0x257 Type: RW Default Value: 0000_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
dpll3_divn_num_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	dpll3_divn_num_cnfg[7:0]	divn_num_cnfg[15:0]: Fractional part of dpll3 output divisor, numerator; Unsigned	0000_0000

DPLL3 Divisor N Numerator H Configuration Register

Register (Abbrev): dpll3_divn_num_h_cnfg Address: 0x258 Type: RW Default Value: 0001_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
dpll3_divn_num_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	dpll3_divn_num_cnfg[15:8]	divn_num_cnfg[15:0]: Fractional part of dpll3 output divisor, numerator; Unsigned	0001_0000

DPLL3 Divisor N Interrupt Configuration Register

Register (Abbrev): dpll3_divn_int_cnfg Address: 0x259 Type: RW Default Value: 0001_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
reserved		dpll3_divn_int_cnfg[5:0]					

Bit	Name	Description	Def. Value
7:6	reserved	reserved	00

DPLL3 Divisor N Interrupt Configuration Register

Register (Abbrev): dpll3_divn_int_cnfg
Address: 0x259
Type: RW
Default Value: 0001_0000

7	6	5	4	3	2	1	0
5:0	dpll3_divn_int_cnfg[5:0]		divn_int_cnfg[5:0]: Integer part of DPLL3 output divisor; Unsigned. The output frequency of DPLL3 is established by the equation: fout_dpll3 = 1 638.4 MHz /DivN fout_dpll3 = 1 638.4 MHz / (divn_int_cnfg + (divn_frac_cnfg + divn_num_cnfg/divn_den_cnfg)/2^21) (The output frequency of DPLL3 set here must agree with the setting of dpll3_dpll_fbdiv_cnfg.) Valid range of DivN is 16.384 (fout_dpll3 = 100 MHz) to 31.995 (fout_dpll3 = 51.208 MHz) Default: fout_dpll3 = 1 638.4 MHz / (x10 + (x155555 + x1000/x3000)/2^21)) = 1 638.4 MHz /16.666 = 98.304 MHz				01_0000

DPLL3 DPLL DSM Configuration Register

Register (Abbrev): dpll3_dpll_dsm_cnfg
Address: 0x25C
Type: RW
Default Value: 0000_0001

7	6	5	4	3	2	1	0
reserved				dpll3_dither_gain[1:0]		dpll3_dsm_ordpll3_der[1:0]	

Bit	Name	Description	Def. Value
7:4	reserved	reserved	0000
3:2	dpll3_dither_gain[1:0]	00: No dither 01: LSB 10: 2*LSB 11: 4*LSB	00
1:0	dpll3_dsm_ordpll3_der[1:0]	00: Integer 01: 1st order 10: 2nd order 11: 3rd order	01

5 APLL1 Registers

APLL1 Charge Pump Current Control Configuration Register

Register (Abbrev): apll1_icp_ctrl_cnfg Address: 0x280 Type: RW Default Value: 0001_0000							
7	6	5	4	3	2	1	0
reserved			apll1_icp_ctrl_code[4:0]				

Bit	Name	Description	Def. Value
7:5	reserved	reserved	000
4:0	apll1_icp_ctrl_code[4:0]	APLL charge pump current selection: current is (icp_ctrl_code X 40 uA) Increased charge-pump current results in faster settling but more ringing. 0_0000: Charge pump is shut off 0_0001: 40 uA 0_0010: 80 uA … 1_1111: 1240 uA	1_0000

APLL1 Divisor Fractional L Configuration Register

Register (Abbrev): apll1_divisor_frac_l_cnfg Address: 0x281 Type: RW Default Value: 1101_1100							
7	6	5	4	3	2	1	0
apll1_divn_frac_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	apll1_divn_frac_cnfg[7:0]	Fractional part of divisor: Unsigned, Default: ‘h4cedc (‘d315004)	1101_1100

APLL1 Divisor Fractional M Configuration Register

Register (Abbrev): apll1_divisor_frac_m_cnfg Address: 0x282 Type: RW Default Value: 1100_1110							
7	6	5	4	3	2	1	0
apll1_divn_frac_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	apll1_divn_frac_cnfg[15:8]	Fractional part of divisor: Unsigned, Default: ‘h4cedc (‘d315004)	1100_1110

APLL1 Divisor Fractional H Configuration Register

Register (Abbrev): apll1_divisor_frac_h_cnfg Address: 0x283 Type: RW Default Value: 0000_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
reserved			apll1_divn_frac_cnfg[20:16]				

Bit	Name	Description	Def. Value
7:5	reserved	reserved	000
4:0	apll1_divn_frac_cnfg[20:16]	Fractional part of divisor: Unsigned, Default: ‘h4cedc (‘d315004)	0_0000

APLL1 Divisor Denominator L Configuration Register

Register (Abbrev): apll1_divisor_den_l_cnfg Address: 0x284 Type: RW Default Value: 1110_0110							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
apll1_divn_den_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	apll1_divn_den_cnfg[7:0]	Fractional part of divisor, denominator: Unsigned, Default: ‘d486	1110_0110

APLL1 Divisor Denominator H Configuration Register

Register (Abbrev): apll1_divisor_den_h_cnfg Address: 0x285 Type: RW Default Value: 0000_0001							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
apll1_divn_den_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	apll1_divn_den_cnfg[15:8]	Fractional part of divisor, denominator: Unsigned, Default: ‘d486	0000_0001

APLL1 Divisor Numerator L Configuration Register

Register (Abbrev): apll1_divisor_num_l_cnfg Address: 0x286 Type: RW Default Value: 0100_1001							
7	6	5	4	3	2	1	0
apll1_divn_num_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	apll1_divn_num_cnfg[7:0]	Fractional part of divisor, numerator: Unsigned, Default: ‘d73	0100_1001

APLL1 Divisor Numerator H Configuration Register

Register (Abbrev): apll1_divisor_num_h_cnfg Address: 0x287 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
apll1_divn_num_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	apll1_divn_num_cnfg[15:8]	Fractional part of divisor, numerator: Unsigned, Default: ‘d73	0000_0000

APLL1 DSM Configuration Register

Register (Abbrev): apll1_dsm_cnfg Address: 0x288 Type: RW Default Value: 0010_0011							
7	6	5	4	3	2	1	0
apll1_path_freq_cnfg[2:0]			apll1_dsm_cnfg_en	apll1_dither_gain[1:0]		apll1_dsm_orapll1_der[1:0]	

Bit	Name	Description	Def. Value
7:5	apll1_path_freq_cnfg[2:0]	These bits select reference clock path and output clock rate of APLL. 000: 622.08 MHz from DPLL1 001: 625 MHz from DPLL1 010: 625 * FEC MHz from DPLL1 100: 622.08 MHz from DPLL2 101: 625 MHz from DPLL2 110: 625 * FEC MHz from DPLL2 Others: Reserved	001
4	apll1_dsm_cnfg_en	0: DSM uses pre-set parameters 1: DSM uses programmable parameters	0

APLL1 DSM Configuration Register

Register (Abbrev): apll1_dsm_cnfg Address: 0x288 Type: RW Default Value: 0010_0011							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
3:2	apll1_dither_gain[1:0]		00: No dither 01: LSB 10: 2 * LSB 11: 4 * LSB				00
1:0	apll1_dsm_orapll1_der[1:0]		00: Integer 01: 1st order 10: 2nd order 11: 3rd order				11

APLL1 Divisor Integer Configuration Register

Register (Abbrev): apll1_divisor_int_cnfg Address: 0x289 Type: RW Default Value: 0010_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
reserved		apll1_divn_int_cnfg[5:0]					

Bit	Name	Description	Def. Value
7:6	reserved	reserved	00
5:0	apll1_divn_int_cnfg[5:0]	Integer part of divisor: Unsigned, N=0~2^6, div by N+1. Default: ‘d31, div by 32	10_0000

APLL1 Frame/Multi-Frame Ratio Configuration Register [7:0]

Register (Abbrev): apll1_fr_ratio_cnfg[7:0] Address: 0x28A Type: RW Default Value: 0001_1111							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
apll1_fr_ratio_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	apll1_fr_ratio_cnfg[7:0]	For debug purposes only. manually configure fr_gen in APLL. fr_ratio_cnfg=fapll_out/2-1 For example: fapll_out = 625MHz, fr_ratio_cnfg=625000000/2-1	0001_1111

APLL1 Frame/Multi-Frame Ratio Configuration Register [15:8]

Register (Abbrev): apll1_fr_ratio_cnfg[15:8] Address: 0x28B Type: RW Default Value: 0101_1111							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
apll1_fr_ratio_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	apll1_fr_ratio_cnfg[15:8]	For debug purposes only. Manually configure fr_gen in APLL. fr_ratio_cnfg=fapll_out/2-1 For example: fapll_out = 625MHz, fr_ratio_cnfg=625000000/2-1	0101_1111

APLL1 Frame/Multi-Frame Ratio Configuration Register [23:16]

Register (Abbrev): apll1_fr_ratio_cnfg[23:16] Address: 0x28C Type: RW Default Value: 1010_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
apll1_fr_ratio_cnfg[23:16]							

Bit	Name	Description	Def. Value
7:0	apll1_fr_ratio_cnfg[23:16]	For debug purposes only. Manually configure fr_gen in APLL. fr_ratio_cnfg=fapll_out/2-1 For example: fapll_out = 625MHz, fr_ratio_cnfg=625000000/2-1	1010_0000

APLL1 Frame/Multi-Frame Ratio Configuration Register [28:24]

Register (Abbrev): apll1_fr_ratio_cnfg[28:24] Address: 0x28D Type: RW Default Value: 0001_0010							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
reserved			apll1_fr_ratio_cnfg[28:24]				

Bit	Name	Description	Def. Value
7:5	reserved	reserved	000
4:0	apll1_fr_ratio_cnfg[28:24]	For debug purposes only. Manually configure fr_gen in APLL. fr_ratio_cnfg=fapll_out/2-1 For example: fapll_out = 625MHz, fr_ratio_cnfg=625000000/2-1	1_0010

6 APLL2 Registers

APLL2 Change Pump Current Control Configuration Register

Register (Abbrev): apll2_icp_ctrl_cnfg Address: 0x28E Type: RW Default Value: 0001_0000							
7	6	5	4	3	2	1	0
reserved			apll2_icp_ctrl_code[4:0]				

Bit	Name	Description	Def. Value
7:5	reserved	reserved	000
4:0	apll2_icp_ctrl_code[4:0]	APLL charge pump current selection: current is (icp_ctrl_code X 40 uA) Increased charge-pump current results in faster settling but more ringing. 0_0000: Charge pump is shut off 0_0001: 40 uA 0_0010: 80 uA … 1_1111: 1240 uA	1_0000

APLL2 Divisor Fractional L Configuration Register

Register (Abbrev): apll2_divisor_frac_l_cnfg Address: 0x28F Type: RW Default Value: 1101_1100							
7	6	5	4	3	2	1	0
apll2_divn_frac_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	apll2_divn_frac_cnfg[7:0]	divn_frac_cnfg[20:0]: Fractional part of divisor: Unsigned, Default: ‘h4cedc (‘d315004)	1101_1100

APLL2 Divisor Fractional M Configuration Register

Register (Abbrev): apll2_divisor_frac_m_cnfg Address: 0x290 Type: RW Default Value: 1100_1110							
7	6	5	4	3	2	1	0
apll2_divn_frac_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	apll2_divn_frac_cnfg[15:8]	divn_frac_cnfg[20:0]: Fractional part of divisor: Unsigned, Default: ‘h4cedc (‘d315004)	1100_1110

APLL2 Divisor Fractional H Configuration Register

Register (Abbrev): apll2_divisor_frac_h_cnfg Address: 0x291 Type: RW Default Value: 0000_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
reserved			apll2_divn_frac_cnfg[20:16]				

Bit	Name	Description	Def. Value
7:5	reserved	reserved	000
4:0	apll2_divn_frac_cnfg[20:16]	divn_frac_cnfg[20:0]: Fractional part of divisor: Unsigned, Default: ‘h4cedc (‘d315004)	0_0000

APLL2 Divisor Denominator L Configuration Register

Register (Abbrev): apll2_divisor_den_l_cnfg Address: 0x292 Type: RW Default Value: 1110_0110							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
apll2_divn_den_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	apll2_divn_den_cnfg[7:0]	divn_den_cnfg[15:0]: Fractional part of divisor, denominator: Unsigned, Default: ‘d486	1110_0110

APLL2 Divisor Denominator H Configuration Register

Register (Abbrev): apll2_divisor_den_h_cnfg Address: 0x293 Type: RW Default Value: 0000_0001							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
apll2_divn_den_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	apll2_divn_den_cnfg[15:8]		0000_0001

APLL2 Divisor Numerator L Configuration Register

Register (Abbrev): apll2_divisor_num_l_cnfg Address: 0x294 Type: RW Default Value: 0100_1001							
7	6	5	4	3	2	1	0
apll2_divn_num_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	apll2_divn_num_cnfg[7:0]	divn_num_cnfg[15:0]: Fractional part of divisor, numerator: Unsigned, Default: ‘d73	0100_1001

APLL2 Divisor Numerator H Configuration Register

Register (Abbrev): apll2_divisor_num_h_cnfg Address: 0x295 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
apll2_divn_num_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	apll2_divn_num_cnfg[15:8]	divn_num_cnfg[15:0]: Fractional part of divisor, numerator: Unsigned, Default: ‘d73	0000_0000

APLL2 DSM Configuration Register

Register (Abbrev): apll2_dsm_cnfg Address: 0x296 Type: RW Default Value: 1010_0011							
7	6	5	4	3	2	1	0
apll2_path_freq_cnfg[2:0]			apll2_dsm_cnfg_en	apll2_dither_gain[1:0]		apll2_dsm_orapll2_der[1:0]	

Bit	Name	Description	Def. Value
7:5	apll2_path_freq_cnfg[2:0]	These bits select reference clock path and output clock rate of APLL. 3'b000: 622.08 MHz from DPLL1 3'b001: 625 MHz from DPLL1 3'b010: 625 * FEC MHz from DPLL1 3'b100: 622.08 MHz from DPLL2 3'b101: 625 MHz from DPLL2 3'b110: 625 * FEC MHz from DPLL2 Others: Reserved	101

APLL2 DSM Configuration Register

Register (Abbrev): apll2_dsm_cnfg Address: 0x296 Type: RW Default Value: 1010_0011							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
4	apll2_dsm_cnfg_en		0: dsm uses pre-set parameters 1: dsm uses programmable parameters				0
3:2	apll2_dither_gain[1:0]		00: No dither 01: LSB 10: 2 * LSB 11: 4 * LSB				00
1:0	apll2_dsm_orapll2_der[1:0]		00: Integer 01: 1st order 10: 2nd order 11: 3rd order				11

APLL2 Divisor Integer Configuration Register

Register (Abbrev): apll2_divisor_int_cnfg Address: 0x297 Type: RW Default Value: 0010_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
reserved		apll2_divn_int_cnfg[5:0]					
Bit	**Name**		**Description**				**Def. Value**
7:6	reserved		reserved				00
5:0	apll2_divn_int_cnfg[5:0]		Integer part of divisor: Unsigned, N=0~2^6, div by N+1. Default: ‘d31, div by 32.				10_0000

APLL2 Frame/Multi-Frame Ratio Configuration Register [7:0]

Register (Abbrev): apll2_fr_ratio_cnfg[7:0] Address: 0x298 Type: RW Default Value: 0001_1111							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
apll2_fr_ratio_cnfg[7:0]							
Bit	**Name**		**Description**				**Def. Value**
7:0	apll2_fr_ratio_cnfg[7:0]		For debug purposes only. Manually configure fr_gen in apll fr_ratio_cnfg=fapll_out/2-1 For example: fapll_out = 625MHz, fr_ratio_cnfg=625000000/2-1				0001_1111

APLL2 Frame/Multi-Frame Ratio Configuration Register [15:8]

Register (Abbrev): apll2_fr_ratio_cnfg[15:8] Address: 0x299 Type: RW Default Value: 0101_1111							
7	6	5	4	3	2	1	0
apll2_fr_ratio_cnfg[15:0]							

Bit	Name	Description	Def. Value
7:0	apll2_fr_ratio_cnfg[15:0]	For debug purposes only. Manually configure fr_gen in APLL. fr_ratio_cnfg=fapll_out/2-1 For example: fapll_out = 625 MHz, fr_ratio_cnfg=625000000/2-1	0101_1111

APLL2 Frame/Multi-Frame Ratio Configuration Register [23:16]

Register (Abbrev): apll2_fr_ratio_cnfg[23:16] Address: 0x29A Type: RW Default Value: 1010_0000							
7	6	5	4	3	2	1	0
apll2_fr_ratio_cnfg[23:0]							

Bit	Name	Description	Def. Value
7:0	apll2_fr_ratio_cnfg[23:0]	For debug purposes only. Manually configure fr_gen in APLL. fr_ratio_cnfg=fapll_out/2-1 For example: fapll_out = 625 MHz, fr_ratio_cnfg=625000000/2-1	1010_0000

APLL2 Frame/Multi-Frame Ratio Configuration Register [28:24]

Register (Abbrev): apll2_fr_ratio_cnfg[28:24] Address: 0x29B Type: RW Default Value: 0001_0010							
7	6	5	4	3	2	1	0
reserved			apll2_fr_ratio_cnfg[28:24]				

Bit	Name	Description	Def. Value
7:5	reserved	reserved	000
4:0	apll2_fr_ratio_cnfg[28:24]	For debug purposes only. Manually configure fr_gen in APLL. fr_ratio_cnfg=fapll_out/2-1 For example: fapll_out = 625 MHz, fr_ratio_cnfg=625000000/2-1	1_0010

System Charge Pump Current Control Configuration Register

Register (Abbrev): sys_icp_ctrl_cnfg Address: 0x29C Type: RW Default Value: 0000_1010							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
reserved			sys_icp_ctrl_code[4:0]				

Bit	Name	Description	Def. Value
7:5	reserved	reserved	000
4:0	sys_icp_ctrl_code[4:0]	APLL charge pump current selection: current is (icp_ctrl_code X 40 uA) Increased charge-pump current results in faster settling but more ringing. 0_0000: Charge pump is shut off 0_0001: 40 uA 0_0010: 80 uA … 1_1111: 1240 uA	0_1010

System Divisor Fractional L Configuration Register

Register (Abbrev): sys_divisor_frac_l_cnfg Address: 0x29D Type: RW Default Value: 1011_1010							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
sys_divn_frac_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	sys_divn_frac_cnfg[7:0]	divn_frac_cnfg[20:0]: Fractional part of divisor: Unsigned	1011_1010

System Divisor Fractional M Configuration Register

Register (Abbrev): sys_divisor_frac_m_cnfg Address: 0x29E Type: RW Default Value: 0100_1001							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
sys_divn_frac_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	sys_divn_frac_cnfg[15:8]	divn_frac_cnfg[20:0]: Fractional part of divisor: Unsigned	0100_1001

System Divisor Fractional H Configuration Register

Register (Abbrev): sys_divisor_frac_h_cnfg Address: 0x29F Type: RW Default Value: 0000_1100							
7	6	5	4	3	2	1	0
reserved			sys_divn_frac_cnfg[20:16]				

Bit	Name	Description	Def. Value
7:5	reserved	reserved	000
4:0	sys_divn_frac_cnfg[20:16]	divn_frac_cnfg[20:0]: Fractional part of divisor: Unsigned	0_1100

System Divisor Denominator L Configuration Register

Register (Abbrev): sys_divisor_den_l_cnfg Address: 0x2A0 Type: RW Default Value: 0111_1101							
7	6	5	4	3	2	1	0
sys_divn_den_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	sys_divn_den_cnfg[7:0]	divn_den_cnfg[15:0]: Fractional part of divisor, denominator: Unsigned	0111_1101

System Divisor Denominator L Configuration Register

Register (Abbrev): sys_divisor_den_l_cnfg Address: 0x2A1 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
sys_divn_den_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	sys_divn_den_cnfg[15:8]	divn_den_cnfg[15:0]: Fractional part of divisor, denominator: Unsigned	0000_0000

System Divisor Numerator L Configuration Register

Register (Abbrev): sys_divisor_num_l_cnfg
Address: 0x2A2
Type: RW
Default Value: 0010_1110

7	6	5	4	3	2	1	0
sys_divn_num_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	sys_divn_num_cnfg[7:0]	divn_num_cnfg[15:0]: Fractional part of divisor, numerator: Unsigned	0010_1110

System Divisor Numerator L Configuration Register

Register (Abbrev): sys_divisor_num_l_cnfg
Address: 0x2A3
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
sys_divn_num_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	sys_divn_num_cnfg[15:8]	divn_num_cnfg[15:0]: Fractional part of divisor, numerator: Unsigned	0000_0000

System DSM Configuration Register

Register (Abbrev): sys_dsm_cnfg
Address: 0x2A4
Type: RW
Default Value: 0000_0011

7	6	5	4	3	2	1	0
reserved			sys_dsm_cnfg _en	sys_dither_gain[1:0]		sys_dsm_orsys_der[1:0]	

Bit	Name	Description	Def. Value
7:5	reserved	reserved	000
4	sys_dsm_cnfg_en	0: DSM uses pre-set parameters 1: DSM uses programmable parameters	0
3:2	sys_dither_gain[1:0]	00: No dither 01: LSB 10: 2 * LSB 11: 4 * LSB	00
1:0	sys_dsm_orsys_der[1:0]	00: Integer 01: 1st order 10: 2nd order 11: 3rd order	11

System Divisor Integer Configuration Register

Register (Abbrev): sys_divisor_int_cnfg Address: 0x2A5 Type: RW Default Value: 0001_1110							
7	6	5	4	3	2	1	0
reserved		sys_divn_int_cnfg[5:0]					

Bit	Name	Description	Def. Value
7:6	reserved	reserved	00
5:0	sys_divn_int_cnfg[5:0]	Integer part of divisor: Unsigned, N=0~2^6, div by N+1. Default: ‘d31, div by 32	01_0000

PLL204 Divisor N Configuration Register

Register (Abbrev): pll204_divn_cnfg Address: 0x2A6 Type: RW Default Value: 0000_1001							
7	6	5	4	3	2	1	0
sys_pll204_dinv_cnfg_en	reserved		sys_pll204_divn_cnfg[4:0]				

Bit	Name	Description	Def. Value
7	sys_pll204_dinv_cnfg_en	For debug purposes only. Manually configure pll204 fb div ratio. N+1 is the actual div ratio.	0
6:5	reserved	reserved	00
4:0	sys_pll204_divn_cnfg[4:0]	For debug purposes only. Manually configure pll204 fb div ratio. N+1 is the actual div ratio.	0_1001

6.1 Output Registers

For 82P33xxx I/O Mapping, see section 8 82P33xxx I/O Mapping

Output 1 Mux Configuration Register

Register (Abbrev): out1_mux_cnfg Address: 0x300 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out1_pdn	out1_inv	out1_squelch[1:0]		out1_mux_cnfg[3:0]			

Bit	Name	Description	Def. Value
7	out1_pdn	0: Output divider not powered-down 1: Output divider powered-down	0

Output 1 Mux Configuration Register

Register (Abbrev): out1_mux_cnfg Address: 0x300 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
6	out1_inv		0: Output not inverted 1: Output inverted				0
5:4	out1_squelch[1:0]		0x: no squelch 10: Squelch to 0 11: Squelch to 1				00
3:0	out1_mux_cnfg[3:0]		0000: APLL1 0011: DPLL1 25 MHz 0100: DPLL1 77.76 MHz 0101: DPLL1 12E1/GPS/E3/T3, dependent on DPLL1 DPLL Path Configuration Register 0110: DPLL1 16E1/16T1 0111: DPLL1 GSM/OBSAI/16E1/16T1, dependent on DPLL1 DPLL Path Configuration Register register 1011: DPLL2 25 MHz 1100: DPLL2 77.76 MHz 1101: DPLL2 12E1/24T1/E3/T3, dependent on DPLL2 DPLL Path Configuration Register register 1110: DPLL2 16E1/16T1, dependent on SONET/SDH pin/bit 1111: DPLL2 GSM/GPS/16E1/16T1, dependent on DPLL2 DPLL Path Configuration Register Others: Reserved (do not use)				0000

Output 1 Divisor 1 Configuration Register [4:0]

Register (Abbrev): out1_div1_cnfg[4:0] Address: 0x301 Type: RW Default Value: 1001_1000							
7	6	5	4	3	2	1	0
out1_sync_en	reserved		out1_div1_cnfg[4:0]				
Bit	**Name**		**Description**				**Def. Value**
7	out1_sync_en		Enables the 1 Hz synchronization of both the div1 and div2 output dividers. 0: Disable sync 1: Enable sync				1
6:5	reserved		reserved				00
4:0	out1_div1_cnfg[4:0]		N1, actual ratio is N1+1. out divider ratio config for N1, integer number from 1 to 2^5.				1_1000

Output 1 Divisor 2 Configuration Register [26:0]

Register (Abbrev): out1_div2_cnfg[26:0]
Address: 0x302, 0x303, 0x304, 0x305
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
out1_div2_cnfg[7:0]							
out1_div2_cnfg[15:8]							
out1_div2_cnfg[23:16]							
reserved					out1_div2_cnfg[26:24]		

Bit	Name	Description	Def. Value
7:0	out1_div2_cnfg[7:0] out1_div2_cnfg[15:8] out1_div2_cnfg[23:16]	out1_div2_cnfg[24:0]:N2, actual ratio is N2+1 out divider ratio config for N2, integer number from 1 to 2^25	0000_0000
7:3	reserved	reserved	0000_0
2:0	out1_div2_cnfg[26:24]	out1_div2_cnfg[24:0]:N2, actual ratio is N2+1 out divider ratio config for N2, integer number from 1 to 2^25	000

Output 1 Phase 1 Configuration Register [4:0]

Register (Abbrev): out1_ph1_cnfg[4:0]
Address: 0x306
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved			out1_ph1_cnfg[4:0]				

Bit	Name	Description	Def. Value
7:5	reserved	reserved	000
4:0	out1_ph1_cnfg[4:0]	This value represents the first stage phase adjustment for OUT01. The output phase of OUT01 will be moved in a POSITIVE direction in an amount calculated by this value times the phase 1 quanta. The phase 1 quanta is dependent on the configured output frequency passed to OUT01. The calculation is (1/FREQ). E.G.: If OUT01 is configured to use a frequency of 625 MHz from APLL1, the phase 1 quanta is (1/625) = 1.6ns. If this value were 10, the phase will be moved forward by 16ns (10*1.6).	0_0000

Output 1 Phase 2 Configuration Register [26:0]

Register (Abbrev): out1_ph2_cnfg[26:0]
Address: 0x307, 0x308, 0x309, 0x30A
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
out1_ph2_cnfg[7:0]							
out1_ph2_cnfg[15:8]							
out1_ph2_cnfg[23:16]							
reserved			out1_ph2_cnfg[26:24]				

Bit	Name	Description	Def. Value
7:0	out1_ph2_cnfg[7:0] out1_ph2_cnfg[15:8] out1_ph2_cnfg[23:16]	This value represents the second stage phase adjustment for OUT01. The output phase of OUT01 will be moved in a POSITIVE direction in an amount calculated by this value times the phase 2 quanta. The phase 2 quanta is dependent on the configured output frequency passed to OUT01 and the divider specified in OUT01_DIV1_CNFG+1.. The calculation is (1/FREQ)(DIV1+1). E.G.: If OUT01 is configured to use a frequency of 625 MHz from APLL1 and OUT01_DIV_CNFG is set to 24, the phase 2 quanta is (1/625)/24 = 40ns. If this value were 5, the phase will be moved forward by 200ns (5*40).	0000_0000
7:5	reserved	reserved	000
4:0	out1_ph2_cnfg[26:24]	This value represents the second stage phase adjustment for OUT01. The output phase of OUT01 will be moved in a POSITIVE direction in an amount calculated by this value times the phase 2 quanta. The phase 2 quanta is dependent on the configured output frequency passed to OUT01 and the divider specified in OUT01_DIV1_CNFG+1.. The calculation is (1/FREQ)(DIV1+1). E.G.: If OUT01 is configured to use a frequency of 625 MHz from APLL1 and OUT01_DIV_CNFG is set to 24, the phase 2 quanta is (1/625)/24 = 40ns. If this value were 5, the phase will be moved forward by 200ns (5*40).	0_0000

Output 1 Fine Phase Configuration Register

Register (Abbrev): out1_fine_ph_cnfg
Address: 0x30B
Type: RW
Default Value: 1100_0000

7	6	5	4	3	2	1	0
out1_pulse_cnfg[1:0]		reserved			out1_fine_ph_cnfg[2:0]		

Bit	Name	Description	Def. Value
7:6	out1_pulse_cnfg[1:0]	Output pulse configure for 1 PPS output, N1 should be set to 'd32, T equals to output clock period of N1 which is 128 VCO period. 00: 2 T 01: 20 T 10: 2000 T 11: 50% duty cycle	11
5:3	reserved	reserved	00_0
2:0	out1_fine_ph_cnfg[2:0]	Fine phase adjustment. step size equals to 1/2 of VCO period.	000

Output 2 Mux Configuration Register

Register (Abbrev): out2_mux_cnfg
Address: 0x30C
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved	out2_inv	out2_squelch[1:0]		reserved			out2_pdn

Bit	Name	Description	Def. Value
7	reserved	reserved	0
6	out2_inv	0: Output not inverted 1: Output inverted	0
5:4	out2_squelch[1:0]	0x: No squelch 10: Squelch to 0 11: Squelch to 1	00_0
3:1	reserved	reserved	000
0	out2_pdn	0: Output divider not powered-down 1: Output divider powered-down	0

Output 2 Divisor 1 Configuration Register [4:0]

Register (Abbrev): out2_div1_cnfg[4:0]
Address: 0x30D
Type: RW
Default Value: 1000_0100

7	6	5	4	3	2	1	0
out2_sync_en	reserved		out2_div1_cnfg[4:0]				

Bit	Name	Description	Def. Value
7	out2_sync_en	Enables the 1 Hz synchronization of both the div1 and div2 output dividers. 0: Disable sync 1: Enable sync	1
6:5	reserved	reserved	00
4:0	out2_div1_cnfg[4:0]	N1, actual ratio is N1+1. out divider ratio config for N1, integer number from 1 to 2^5.	0_0100

Output 2 Divisor 2 Configuration Register [26:0]

Register (Abbrev): out2_div2_cnfg[26:0]
Address: 0x30E, 0x30F, 0x310, 0x311
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
out2_div2_cnfg[7:0]							
out2_div2_cnfg[15:8]							
out2_div2_cnfg[23:16]							
reserved					out2_div2_cnfg[26:24]		

Bit	Name	Description	Def. Value
7:0	out2_div2_cnfg[7:0] out2_div2_cnfg[15:8] out2_div2_cnfg[23:16]	N2, actual ratio is N2+1. out divider ratio config for N2, integer number from 1 to 2^25.	0000_0000
7:3	reserved	reserved	0000_0
2:0	out2_div2_cnfg[26:24]	N2, actual ratio is N2+1. out divider ratio config for N2, integer number from 1 to 2^25.	000

Output 2 Phase 1 Configuration Register [4:0]

Register (Abbrev): out2_ph1_cnfg[4:0] Address: 0x312 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
reserved			out2_ph1_cnfg[4:0]				

Bit	Name	Description	Def. Value
7:5	reserved	reserved	000
4:0	out2_ph1_cnfg[4:0]	Phase adjustment configure of N1. The step size equals to the input clock period of N1. The number in this register should not be larger than the number in the Output 2 Divisor 1 Configuration Register [4:0].	0_0000

Output 2 Phase 2 Configuration Register [7:0]

Register (Abbrev): out2_ph2_cnfg[7:0] Address: 0x313 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out2_ph2_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	out2_ph2_cnfg[7:0]	out2_ph2_cnfg[24:0]: Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1 the number in this register should not be larger than the number in the Output 2 Divisor 2 Configuration Register [26:0].	0000_0000

Output 2 Phase 2 Configuration Register [15:8]

Register (Abbrev): out2_ph2_cnfg[15:8] Address: 0x314 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out2_ph2_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	out2_ph2_cnfg[15:8]	out2_ph2_cnfg[24:0]: Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1 the number in this register should not be larger than the number in the Output 2 Divisor 2 Configuration Register [26:0].	0000_0000

Output 2 Phase 2 Configuration Register [23:16]

Register (Abbrev): out2_ph2_cnfg[23:16]
Address: 0x315
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
out2_ph2_cnfg[23:16]							

Bit	Name	Description	Def. Value
7:0	out2_ph2_cnfg[23:16]	out2_ph2_cnfg[24:0]: Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1 the number in this register should not be larger than the number in the Output 2 Divisor 2 Configuration Register [26:0].	0000_0000

Output 2 Phase 2 Configuration Register [26:24]

Register (Abbrev): out2_ph2_cnfg[26:24]
Address: 0x316
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved					out2_ph2_cnfg[26:24]		

Bit	Name	Description	Def. Value
7:3	reserved	reserved	0000_0
2:0	out2_ph2_cnfg[26:24]	out2_ph2_cnfg[24:0]: phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1 the number in this register should not larger than the number in the Output 2 Divisor 2 Configuration Register [26:0].	000

Output 2 Fine Phase Configuration Register

Register (Abbrev): out2_fine_ph_cnfg
Address: 0x317
Type: RW
Default Value: 1100_0000

7	6	5	4	3	2	1	0
out2_pulse_cnfg[1:0]		reserved			out2_fine_ph_cnfg[2:0]		

Bit	Name	Description	Def. Value
7:6	out2_ph2_cnfg[7:0]	Output pulse configure for 1 PPS output, N1 should be set to 'd32, T equals to output clock period of N1 which is 128 VCO period. 00: 2 T 01: 20 T 10: 2000 T 11: 50% duty cycle	11

Output 2 Fine Phase Configuration Register

Register (Abbrev): out2_fine_ph_cnfg
Address: 0x317
Type: RW
Default Value: 1100_0000

7	6	5	4	3	2	1	0
5:3	reserved		reserved				00_0
2:0	out2_fine_ph_cnfg[2:0]		Fine phase adjustment. Step size equals to 1/2 of VCO period.				000

Output 3 Mux Configuration Register

Register (Abbrev): out3_mux_cnfg
Address: 0x318
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
lvds_pecl	out3_inv	out3_squelch[1:0]		reserved		out3_pad_pdn	out3_pdn

Bit	Name	Description	Def. Value
7	lvds_pecl	0: LVDS mode output 1: PECL mode output	0
6	out3_inv	0: Output not inverted 1: Output inverted	0
5:4	out3_squelch[1:0]	0x: No squelch 10: Squelch to 0 11: Squelch to 1	00
3:2	reserved	reserved	00
1	out3_pad_pdn	0: Output pad not powered-down 1: Output pad powered-down	0
0	out3_pdn	0: Output divider not powered-down 1: Output divider powered-down	0

Output 3 Divisor 1 Configuration Register [4:0]

Register (Abbrev): out3_div1_cnfg[4:0]
Address: 0x319
Type: RW
Default Value: 1000_0011

7	6	5	4	3	2	1	0
out3_sync_en	reserved		out3_div1_cnfg[4:0]				

Bit	Name	Description	Def. Value
7	out3_sync_en	Enables the 1 Hz synchronization of both the div1 and div2 output dividers. 0: Disable sync. 1: Enable sync.	1
6:5	reserved	reserved	00
4:0	out3_div1_cnfg[4:0]	out3_div1_cnfg[4:0]:N1, actual ratio is N1+1 out divider ratio config for N1, integer number from 1 to 2^5	0_0011

Output 3 Divisor 2 Configuration Register [7:0]

Register (Abbrev): out3_div2_cnfg[7:0]
Address: 0x31A
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
out3_div2_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	out3_div2_cnfg[7:0]	N2, actual ratio is N2+1 out divider ratio config for N2, integer number from 1 to 2^25	0000_0000

Output 3 Divisor 2 Configuration Register [15:8]

Register (Abbrev): out3_div2_cnfg[15:8]
Address: 0x31B
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
out3_div2_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	out3_div2_cnfg[15:8]	N2, actual ratio is N2+1 out divider ratio config for N2, integer number from 1 to 2^25	0000_0000

Output 3 Divisor 2 Configuration Register [23:16]

Register (Abbrev): out3_div2_cnfg[23:16]
Address: 0x31C
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
out3_div2_cnfg[23:16]							

Bit	Name	Description	Def. Value
7:0	out3_div2_cnfg[23:16]	N2, actual ratio is N2+1 out divider ratio config for N2, integer number from 1 to 2^25	0000_0000

Output 3 Divisor 2 Configuration Register [26:24]

Register (Abbrev): out3_div2_cnfg[26:24]
Address: 0x31D
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved					out3_div2_cnfg[26:24]		

Bit	Name	Description	Def. Value
7:3	reserved	reserved	0000_0
2:0	out3_div2_cnfg[26:24]	N2, actual ratio is N2+1 out divider ratio config for N2, integer number from 1 to 2^25	000

Output 3 Phase 1 Configuration Register [4:0]

Register (Abbrev): out3_ph1_cnfg[4:0]
Address: 0x31E
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved			out3_ph1_cnfg[4:0]				

Bit	Name	Description	Def. Value
7:5	reserved	reserved	000
4:0	out3_ph1_cnfg[4:0]	Phase adjustment configure of N1. The step size equals to the input clock period of N1. The number in this register should not be larger than the number in out3_div1_cnfg[4:0].	

Output 3 Phase 2 Configuration Register [7:0]

Register (Abbrev): out3_ph2_cnfg[7:0] Address: 0x31F Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out3_ph2_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	out3_ph2_cnfg[7:0]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1. The number in this register should not be larger than the number in out3_div2_cnfg[24:0].	0000_0000

Output 3 Phase 2 Configuration Register [15:8]

Register (Abbrev): out3_ph2_cnfg[15:8] Address: 0x320 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out3_ph2_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	out3_ph2_cnfg[15:8]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1. The number in this register should not be larger than the number in out3_div2_cnfg[24:0].	0000_0000

Output 3 Phase 2 Configuration Register [23:16]

Register (Abbrev): out3_ph2_cnfg[23:16] Address: 0x321 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out3_ph2_cnfg[23:16]							

Bit	Name	Description	Def. Value
7:0	out3_ph2_cnfg[23:16]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1. The number in this register should not be larger than the number in out3_div2_cnfg[24:0].	0000_0000

Output 3 Phase 2 Configuration Register [26:24]

Register (Abbrev): out3_ph2_cnfg[26:24]
Address: 0x322
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved					out3_ph2_cnfg[26:24]		

Bit	Name	Description	Def. Value
7:3	reserved	reserved	0000_0
2:0	out3_ph2_cnfg[26:24]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1. The number in this register should not be larger than the number in out3_div2_cnfg[24:0].	000

Output 3 Fine Phase Configuration Register

Register (Abbrev): out3_fine_ph_cnfg
Address: 0x323
Type: RW
Default Value: 1100_0000

7	6	5	4	3	2	1	0
out3_pulse_cnfg[1:0]		reserved			out3_fine_ph_cnfg[2:0]		

Bit	Name	Description	Def. Value
7:6	out3_pulse_cnfg[1:0]	Output pulse configure for 1PPS output, N1 should be set to 'd32, T equals to output clock period of N1 which is 128 VCO period. 00: 2 T 01: 20 T 10: 2000 T 11: 50% duty cycle	11
5:3	reserved	reserved	00_0
2:0	out3_fine_ph_cnfg[2:0]	Fine phase adjustment. Step size equals to 1/2 of VCO period.	000

Output 4 Mux Configuration Register

Register (Abbrev): out4_mux_cnfg
Address: 0x324
Type: RW
Default Value: 0010_0000

7	6	5	4	3	2	1	0
lvds_pecl	out4_inv	out4_squelch[1:0]		reserved		out4_pad_pdn	out4_pdn

Bit	Name	Description	Def. Value
7	lvds_pecl	0: LVDS mode output 1: PECL mode output	0

Output 4 Mux Configuration Register

Register (Abbrev): out4_mux_cnfg Address: 0x324 Type: RW Default Value: 0010_0000							
7	6	5	4	3	2	1	0
6	out4_inv		0: Output not inverted 1: Output inverted				0
5:4	out4_squelch[1:0]		0x: No squelch 10: Squelch to 0 11: Squelch to 1				10
3:2	reserved		reserved				00
1	out4_pad_pdn		0: Output pad not powered-down 1: Output pad powered-down				0
0	out4_pdn		0: Output divider not powered-down 1: Output divider powered-down				0

Output 4 Divisor 1 Configuration Register [4:0]

Register (Abbrev): out4_div1_cnfg[4:0] Address: 0x325 Type: RW Default Value: 1000_0100							
7	6	5	4	3	2	1	0
out4_sync_en	reserved		out4_div_cnfg[4:0]				
Bit	**Name**		**Description**				**Def. Value**
7	out4_sync_en		Enables the 1 Hz synchronization of both the div1 and div2 output dividers. 0: Disable sync. 1: Enable sync.				1
6:5	reserved		reserved				00
4:0	out4_div_cnfg[4:0]		N1, actual ratio is N1+1. out divider ratio config for N1, integer number from 1 to 2^5.				0_0100

Output 4 Divisor 2 Configuration Register [7:0]

Register (Abbrev): out4_div2_cnfg[7:0] Address: 0x326 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out4_div_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	out4_div_cnfg[7:0]	N2, actual ratio is N2+1. Out divider ratio config for N2, integer number from 1 to 2^25.	0000_0000

Output 4 Divisor 2 Configuration Register [15:8]

Register (Abbrev): out4_div2_cnfg[15:8] Address: 0x327 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out4_div_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	out4_div_cnfg[15:8]	N2, actual ratio is N2+1. Out divider ratio config for N2, integer number from 1 to 2^25.	0000_0000

Output 4 Divisor 2 Configuration Register [23:16]

Register (Abbrev): out4_div2_cnfg[23:16] Address: 0x328 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out4_div_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	out4_div_cnfg[15:8]	N2, actual ratio is N2+1. Out divider ratio config for N2, integer number from 1 to 2^25.	0000_0000

Output 4 Divisor 2 Configuration Register [26:24]

Register (Abbrev): out4_div2_cnfg[26:24]
Address: 0x329
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved					out4_div_cnfg[26:24]		

Bit	Name	Description	Def. Value
7:3	reserved	reserved	0000_0
2:0	out4_div_cnfg[26:24]	N2, actual ratio is N2+1. Out divider ratio config for N2, integer number from 1 to 2^25.	000

Output 4 Phase 1 Configuration Register [4:0]

Register (Abbrev): out4_ph1_cnfg[4:0]
Address: 0x32A
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved			out4_ph1_cnfg[4:0]				

Bit	Name	Description	Def. Value
7:5	reserved	reserved	000
4:0	out4_ph1_cnfg[4:0]	Phase adjustment configure of N1. The step size equals to the input clock period of N1. The number in this register should not be larger than the number in out4_div1_cnfg[4:0].	0_0000

Output 4 Phase 2 Configuration Register [7:0]

Register (Abbrev): out4_ph2_cnfg[7:0]
Address: 0x32B
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
out4_ph2_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	out4_ph2_cnfg[7:0]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1. The number in this register should not l be larger than the number in out4_div2_cnfg[24:0].	0000_0000

Output 4 Phase 2 Configuration Register [15:8]

Register (Abbrev): out4_ph2_cnfg[15:8] Address: 0x32C Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out4_ph2_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	out4_ph2_cnfg[15:8]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1. The number in this register should not be larger than the number in out4_div2_cnfg[24:0].	0000_0000

Output 4 Phase 2 Configuration Register [23:16]

Register (Abbrev): out4_ph2_cnfg[23:16] Address: 0x32D Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out4_ph2_cnfg[23:16]							

Bit	Name	Description	Def. Value
7:0	out4_ph2_cnfg[23:16]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1. The number in this register should not be larger than the number in out4_div2_cnfg[24:0].	0000_0000

Output 4 Phase 2 Configuration Register [26:24]

Register (Abbrev): out4_ph2_cnfg[26:24] Address: 0x32E Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
reserved					out4_ph2_cnfg[26:24]		

Bit	Name	Description	Def. Value
7:3	reserved	reserved	0000_0
2:0	out4_ph2_cnfg[26:24]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1. The number in this register should not be larger than the number in out4_div2_cnfg[24:0].	000

Output 4 Fine Phase Configuration Register

Register (Abbrev): out4_fine_ph_cnfg
Address: 0x32F
Type: RW
Default Value: 1100_0000

7	6	5	4	3	2	1	0
out4_pulse_cnfg[1:0]		reserved			out4_fine_ph_cnfg[2]		

Bit	Name	Description	Def. Value
7:6	out4_pulse_cnfg[1:0]	Output pulse configure for 1 PPS output, N1 should be set to 'd32, T equals to output clock period of N1 which is 128 VCO period. 00: 2 T 01: 20 T 10: 2000 T 11: 50% duty cycle	11
5:3	reserved	reserved	00_0
2:0	out4_fine_ph_cnfg[2]	Fine phase adjustment. Step size equals to 1/2 of VCO period.	000

Output 5 Mux Configuration Register

Register (Abbrev): out5_mux_cnfg
Address: 0x330
Type: RW
Default Value: 0010_0000

7	6	5	4	3	2	1	0
lvds_pecl	out5_inv	out5_squelch[1:0]		reserved		out5_pad_pdn	out5_pdn

Bit	Name	Description	Def. Value
7	lvds_pecl	0: LVDS mode output 1: PECL mode output	0
6	out5_inv	0: Output not inverted 1: Output inverted	0
5:4	out5_squelch[1:0]	10: Squelch to 0 11: Squelch to 1	10
3:2	reserved	reserved	00
1	out5_pad_pdn	0: Output pad not powered-down 1: Output pad powered-down	0
0	out5_pdn	0: Output divider not powered-down 1: Output divider powered-down	0

Output 5 Divisor 1 Configuration Register [4:0]

Register (Abbrev): out5_div1_cnfg[4:0]
Address: 0x331
Type: RW
Default Value: 1000_0100

7	6	5	4	3	2	1	0
out5_sync_en	reserved		out5_div_cnfg[4:0]				

Bit	Name	Description	Def. Value
7	out5_sync_en	Enables the 1 Hz synchronization of both the div1 and div2 output dividers. 0: Disable sync. 1: Enable sync.	1
6:5	reserved	reserved	00
4:0	out5_div_cnfg[4:0]	N1, actual ratio is N1+1. out divider ratio config for N1, integer number from 1 to 2^5.	0_0100

Output 5 Divisor 2 Configuration Register [7:0]

Register (Abbrev): out5_div2_cnfg[7:0]
Address: 0x332
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
out5_div_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	out5_div_cnfg[7:0]	N2, actual ratio is N2+1. Uut divider ratio config for N2, integer number from 1 to 2^25.	0000_0000

Output 5 Divisor 2 Configuration Register [15:8]

Register (Abbrev): out5_div2_cnfg[15:8]
Address: 0x333
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
out5_div_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	out5_div_cnfg[15:8]	N2, actual ratio is N2+1. Uut divider ratio config for N2, integer number from 1 to 2^25.	0000_0000

Output 5 Divisor 2 Configuration Register [23:16]

Register (Abbrev): out5_div2_cnfg[23:16]
Address: 0x334
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
out5_div_cnfg[23:16]							

Bit	Name	Description	Def. Value
7:0	out5_div_cnfg[23:16]	N2, actual ratio is N2+1. Uut divider ratio config for N2, integer number from 1 to 2^25.	0000_0000

Output 5 Divisor 2 Configuration Register [26:24]

Register (Abbrev): out5_div2_cnfg[26:24]
Address: 0x335
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved					out5_div_cnfg[26:24]		

Bit	Name	Description	Def. Value
7:3	reserved	reserved	0000_0
2:0	out5_div_cnfg[26:24]	N2, actual ratio is N2+1. Uut divider ratio config for N2, integer number from 1 to 2^25.	000

Output 5 Phase 1 Configuration Register [4:0]

Register (Abbrev): out5_ph1_cnfg[4:0]
Address: 0x336
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved			out5_ph1_cnfg[4:0]				

Bit	Name	Description	Def. Value
7:5	reserved	reserved	000
4:0	out5_ph1_cnfg[4:0]	Phase adjustment configure of N1. The step size equals to the input clock period of N1. The number in this register should not be larger than the number in out5_div1_cnfg[4:0].	0_0000

Output 5 Phase 2 Configuration Register [7:0]

Register (Abbrev): out5_ph2_cnfg[7:0] Address: 0x337 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out5_ph2_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	out5_ph2_cnfg[7:0]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1. The number in this register should not be larger than the number in out5_div2_cnfg[24:0].	0000_0000

Output 5 Phase 2 Configuration Register [15:8]

Register (Abbrev): out5_ph2_cnfg[15:8] Address: 0x338 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out5_ph2_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	out5_ph2_cnfg[15:8]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1. The number in this register should not be larger than the number in out5_div2_cnfg[24:0].	0000_0000

Output 5 Phase 2 Configuration Register [23:16]

Register (Abbrev): out5_ph2_cnfg[23:16] Address: 0x339 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out5_ph2_cnfg[23:16]							

Bit	Name	Description	Def. Value
7:0	out5_ph2_cnfg[23:16]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1. The number in this register should not be larger than the number in out5_div2_cnfg[24:0].	0000_0000

Output 5 Phase 2 Configuration Register [26:24]

Register (Abbrev): out5_ph2_cnfg[26:24]
Address: 0x33A
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved					out5_ph2_cnfg[26:24]		

Bit	Name	Description	Def. Value
7:3	reserved	reserved	0000_0
2:0	out5_ph2_cnfg[26:24]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1. The number in this register should not be larger than the number in out5_div2_cnfg[24:0].	000

Output 5 Fine Phase Configuration Register

Register (Abbrev): out5_fine_ph_cnfg
Address: 0x33B
Type: RW
Default Value: 1100_0000

7	6	5	4	3	2	1	0
out5_pulse_cnfg[1:0]		reserved			out5_fine_ph_cnfg[2:0]		

Bit	Name	Description	Def. Value
7:6	out5_pulse_cnfg[1:0]	Output pulse configure for 1PPS output, N1 should be set to 'd32, T equals to output clock period of N1 which is 128 VCO period. 00: 2 T 01: 20 T 10: 2000 T 11: 50% duty cycle	11
5:3	reserved	reserved	00_0
2:0	out5_fine_ph_cnfg[2:0]	Fine phase adjustment. Step size equals to 1/2 of VCO period.	000

Output 6 Mux Configuration Register

Register (Abbrev): out6_mux_cnfg
Address: 0x33C
Type: RW
Default Value: 0010_0000

7	6	5	4	3	2	1	0
lvds_pecl	out6_inv	out6_squelch[1:0]		reserved		out6_pad_pdn	out6_pdn

Bit	Name	Description	Def. Value
7	lvds_pecl	0: LVDS mode output 1: PECL mode output	0

Output 6 Mux Configuration Register

Register (Abbrev): out6_mux_cnfg Address: 0x33C Type: RW Default Value: 0010_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
6	out6_inv		0: Output not inverted 1: Output inverted				0
5:4	out6_squelch[1:0]		0x: No squelch 10: Squelch to 0 11: Squelch to 1				10
3:2	reserved		reserved				00
1	out6_pad_pdn		0: Output pad not powered-down 1: Output pad powered-down				0
0	out6_pdn		0: Output divider not powered-down 1: Output divider powered-down				0

Output 6 Divisor 1 Configuration Register [7:0]

Register (Abbrev): out6_div1_cnfg[7:0] Address: 0x33D Type: RW Default Value: 0000_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
out6_sync_en	reserved		out6_div_cnfg[4:0]				
Bit	**Name**		**Description**				**Def. Value**
7	out6_sync_en		Enables the 1 Hz synchronization of both the div1 and div2 output dividers. 0: Disable sync. 1: Enable sync.				
6:5	reserved		reserved				00
4:0	out6_div_cnfg[4:0]		N1, actual ratio is N1+1. Out divider ratio config for N1, integer number from 1 to 2^5.				

Output 6 Divisor 2 Configuration Register [7:0]

Register (Abbrev): out6_div2_cnfg[7:0] Address: 0x33E Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out6_div_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	out6_div_cnfg[7:0]	N2, actual ratio is N2+1. out divider ratio config for N2, integer number from 1 to 2^25.	0000_0000

Output 6 Divisor 2 Configuration Register [15:8]

Register (Abbrev): out6_div2_cnfg[15:8] Address: 0x33F Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out6_div_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	out6_div_cnfg[15:8]	N2, actual ratio is N2+1. out divider ratio config for N2, integer number from 1 to 2^25.	0000_0000

Output 6 Divisor 2 Configuration Register [23:16]

Register (Abbrev): out6_div2_cnfg[23:16] Address: 0x340 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out6_div_cnfg[23:16]							

Bit	Name	Description	Def. Value
7:0	out6_div_cnfg[23:16]	N2, actual ratio is N2+1. out divider ratio config for N2, integer number from 1 to 2^25.	0000_0000

Output 6 Divisor 2 Configuration Register [26:24]

Register (Abbrev): out6_div2_cnfg[26:24]
Address: 0x341
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved					out6_div_cnfg[26:24]		

Bit	Name	Description	Def. Value
7:3	reserved	reserved	00
2:0	out6_div_cnfg[26:24]	N2, actual ratio is N2+1. out divider ratio config for N2, integer number from 1 to 2^25.	00_0000

Output 6 Phase 1 Configuration Register [4:0]

Register (Abbrev): out6_ph1_cnfg[4:0]
Address: 0x342
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved			out6_ph1_cnfg[4:0]				

Bit	Name	Description	Def. Value
7:5	reserved	reserved	00
4:0	out6_ph1_cnfg[4:0]	Phase adjustment configure of N1. The step size equals to the input clock period of N1. The number in this register should not be larger than the number in out6_div1_cnfg[4:0].	00_0000

Output 6 Phase 2 Configuration Register [7:0]

Register (Abbrev): out6_ph2_cnfg[7:0]
Address: 0x343
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
out6_ph2_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	out6_ph2_cnfg[7:0]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1 the number in this register should not be larger than the number in out6_div2_cnfg[24:0]	0000_0000

Output 6 Phase 2 Configuration Register [15:8]

Register (Abbrev): out6_ph2_cnfg[15:8] Address: 0x344 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out6_ph2_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	out6_ph2_cnfg[15:8]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1 the number in this register should not be larger than the number in out6_div2_cnfg[24:0]	0000_0000

Output 6 Phase 2 Configuration Register [23:16]

Register (Abbrev): out6_ph2_cnfg[23:16] Address: 0x345 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out6_ph2_cnfg[23:16]							

Bit	Name	Description	Def. Value
7:0	out6_ph2_cnfg[23:16]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1 the number in this register should not be larger than the number in out6_div2_cnfg[24:0]	0000_0000

Output 6 Phase 2 Configuration Register [26:24]

Register (Abbrev): out6_ph2_cnfg[26:24] Address: 0x346 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
reserved					out6_ph2_cnfg[26:24]		

Bit	Name	Description	Def. Value
7:3	reserved	reserved	00
2:0	out6_ph2_cnfg[26:24]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1 the number in this register should not be larger than the number in out6_div2_cnfg[24:0]	00_0000

Output 6 Fine Phase Configuration Register

Register (Abbrev): out6_fine_ph_cnfg
Address: 0x347
Type: RW
Default Value: 1100_0000

7	6	5	4	3	2	1	0
out6_pulse_cnfg[1:0]		reserved			out6_fine_ph_cnfg[2:0]		

Bit	Name	Description	Def. Value
7:6	out6_pulse_cnfg[1:0]	Output pulse configure for 1PPS output, N1 should be set to 'd32, T equals to output clock period of N1 which is 128 VCO period. 00: 2 T 01: 20 T 10: 2000 T 11: 50% duty cycle	11
5:3	reserved	reserved	00
2:0	out6_fine_ph_cnfg[2:0]	Fine phase adjustment. Step size equals to 1/2 of VCO period.	0000

Output 7 Mux Configuration Register

Register (Abbrev): out7_mux_cnfg
Address: 0x348
Type: RW
Default Value: 0010_0000

7	6	5	4	3	2	1	0
reserved	out7_inv	out7_squelch[1:0]		reserved			out7_pdn

Bit	Name	Description	Def. Value
7	reserved	reserved	00
6	out7_inv	0: Output not inverted 1: Output inverted	1
5:4	out7_squelch[1:0]	0x: No squelch 10: Squelch to 0 11: Squelch to 1	00
3:1	reserved	reserved	000
0	out7_pdn	0: Output divider not powered-down 1: Output divider powered-down	0

Output 7 Divisor 1 Configuration Register [7:0]

Register (Abbrev): out7_div1_cnfg[7:0]
Address: 0x349
Type: RW
Default Value: 1000_0100

7	6	5	4	3	2	1	0
out7_sync_en	reserved		out7_div_cnfg[4]				

Bit	Name	Description	Def. Value
7	out7_sync_en	Enables the 1 Hz synchronization of both the div1 and div2 output dividers. 0: Disable sync. 1: Enable sync.	1
6:5	reserved	reserved	00
4:0	out7_div_cnfg[4]	N1, actual ratio is N1+1. out divider ratio config for N1, integer number from 1 to 2^5.	0_0100

Output 7 Divisor 2 Configuration Register [7:0]

Register (Abbrev): out7_div2_cnfg[7:0]
Address: 0x34A
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
out7_div_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	out7_div_cnfg[7:0]	N2, actual ratio is N2+1. Out divider ratio config for N2, integer number from 1 to 2^25.	0000_0000

Output 7 Divisor 2 Configuration Register [15:8]

Register (Abbrev): out7_div2_cnfg[15:8]
Address: 0x34B
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
out7_div_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	out7_div_cnfg[15:8]	N2, actual ratio is N2+1. Out divider ratio config for N2, integer number from 1 to 2^25.	0000_0000

Output 7 Divisor 2 Configuration Register [23:16]

Register (Abbrev): out7_div2_cnfg[23:16]
Address: 0x34C
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
out7_div_cnfg[23:16]							

Bit	Name	Description	Def. Value
7:0	out7_div_cnfg[23:16]	N2, actual ratio is N2+1. Out divider ratio config for N2, integer number from 1 to 2^25.	0000_0000

Output 7 Divisor 2 Configuration Register [26:24]

Register (Abbrev): out7_div2_cnfg[26:24]
Address: 0x34D
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved					out7_div_cnfg[26:24]		

Bit	Name	Description	Def. Value
7:3	reserved	reserved	0000_0
2:0	out7_div_cnfg[26:24]	N2, actual ratio is N2+1. Out divider ratio config for N2, integer number from 1 to 2^25.	000

Output 7 Phase 1 Configuration Register [4:0]

Register (Abbrev): out7_ph1_cnfg[4:0]
Address: 0x34E
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved			out7_ph1_cnfg[4:0]				

Bit	Name	Description	Def. Value
7:5	reserved	reserved	000
4:0	out7_ph1_cnfg[4:0]	Phase adjustment configure of N1. The step size equals to the input clock period of N1. The number in this register should not be larger than the number in out7_div1_cnfg[4:0].	0_0000

Output 7 Phase 2 Configuration Register [7:0]

Register (Abbrev): out7_ph2_cnfg[7:0] Address: 0x34F Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out7_ph2_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	out7_ph2_cnfg[7:0]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1. the number in this register should not be larger than the number in out7_div2_cnfg[24:0].	0000_0000

Output 7 Phase 2 Configuration Register [15:8]

Register (Abbrev): out7_ph2_cnfg[15:8] Address: 0x350 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out7_ph2_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	out7_ph2_cnfg[15:8]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1. the number in this register should not be larger than the number in out7_div2_cnfg[24:0].	0000_0000

Output 7 Phase 2 Configuration Register [23:16]

Register (Abbrev): out7_ph2_cnfg[23:16] Address: 0x351 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out7_ph2_cnfg[23:16]							

Bit	Name	Description	Def. Value
7:0	out7_ph2_cnfg[23:16]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1. the number in this register should not be larger than the number in out7_div2_cnfg[24:0].	0000_0000

Output 7 Phase 2 Configuration Register [26:24]

Register (Abbrev): out7_ph2_cnfg[26:24]
Address: 0x352
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved					out7_ph2_cnfg[26:24]		

Bit	Name	Description	Def. Value
7:3	reserved	reserved	0000_0
2:0	out7_ph2_cnfg[26:24]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1. the number in this register should not be larger than the number in out7_div2_cnfg[24:0].	000

Output 7 Fine Phase Configuration Register

Register (Abbrev): out7_fine_ph_cnfg
Address: 0x353
Type: RW
Default Value: 1100_0000

7	6	5	4	3	2	1	0
out7_pulse_cnfg[1:0]		reserved			out7_fine_ph_cnfg[2:0]		

Bit	Name	Description	Def. Value
7:6	out7_pulse_cnfg[1:0]	Output pulse configure for 1 PPS output, N1 should be set to 'd32, T equals to output clock period of N1 which is 128 VCO period. 00: 2 T 01: 20 T 10: 2000 T 11: 50% duty cycle	11
5:3	reserved	reserved	00_0
2:0	out7_fine_ph_cnfg[2:0]	Fine phase adjustment. Step size equals to 1/2 of VCO period.	000

Output 8 Mux Configuration Register

Register (Abbrev): out8_mux_cnfg
Address: 0x354
Type: RW
Default Value: 0010_0000

7	6	5	4	3	2	1	0
out8_pdn	out8_inv	out8_squelch[1:0]		out8_mux_cnfg[3]			

Bit	Name	Description	Def. Value
7	out8_pdn	0: Output divider not powered-down 1: Output divider powered-down	0

Output 8 Mux Configuration Register

Register (Abbrev): out8_mux_cnfg Address: 0x354 Type: RW Default Value: 0010_0000							
7	6	5	4	3	2	1	0
6	out8_inv		0: Output not inverted 1: Output inverted				0
5:4	out8_squelch[1:0]		0x: No squelch 10: Squelch to 0 11: Squelch to 1				10
3:0	out8_mux_cnfg[3]		0000: APLL2 0011: DPLL1 25M 0100: DPLL1 77.76 MHz 0101: DPLL1 12E1/GPS/E3/T3, dependent on DPLL1 DPLL Path Configuration Register register 0110: DPLL1 16E1/16T1 0111: DPLL1 GSM/OBSAI/16E1/16T1, dependent on DPLL1 DPLL Path Configuration Register 1011: DPLL2 25 MHz 1100: DPLL2 77.76 MHz 1101: DPLL2 12E1/24T1/E3/T3, dependent on DPLL2 DPLL Path Configuration Register 1110: DPLL2 16E1/16T1, dependent on SONET/SDH pin/bit 1111: DPLL2 GSM/GPS/16E1/16T1, dependent on DPLL2 DPLL Path Configuration Register Others: Reserved (do not use)				0000

Output 8 Divisor 1 Configuration Register [7:0]

Register (Abbrev): out8_div1_cnfg[7:0] Address: 0x355 Type: RW Default Value: 1001_1000							
7	6	5	4	3	2	1	0
out8_sync_en	reserved		out8_div_cnfg[4:0]				
Bit	**Name**		**Description**				**Def. Value**
7	out8_sync_en		Enables the 1 Hz synchronization of both the div1 and div2 output dividers. 0: Disable sync. 1: Enable sync.				1
6:5	reserved		reserved				00
4:0	out8_div_cnfg[4:0]		N1, actual ratio is N1+1. Out divider ratio config for N1, integer number from 1 to 2^5.				1_1000

Output 8 Divisor 2 Configuration Register [7:0]

Register (Abbrev): out8_div2_cnfg[7:0] Address: 0x356 Type: RW Default Value: 0001_0000							
7	6	5	4	3	2	1	0
out8_div_cnfg[7:0]							
Bit	Name	Description					Def. Value
7:0	out8_div_cnfg[7:0]	N2, actual ratio is N2+1. Out divider ratio config for N2, integer number from 1 to 2^25.					0001_0000

Output 8 Divisor Configuration Register [15:8]

Register (Abbrev): out8_div2_cnfg[15:8] Address: 0x357 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out8_div_cnfg[15:8]							
Bit	Name	Description					Def. Value
7:0	out8_div_cnfg[15:8]	N2, actual ratio is N2+1. Out divider ratio config for N2, integer number from 1 to 2^25.					0000_0000

Output 8 Divisor Configuration Register [23:16]

Register (Abbrev): out8_div2_cnfg[23:16] Address: 0x358 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out8_div_cnfg[23:16]							
Bit	Name	Description					Def. Value
7:0	out8_div_cnfg[23:16]	N2, actual ratio is N2+1. Out divider ratio config for N2, integer number from 1 to 2^25.					0000_0000

Output 8 Divisor 2 Configuration Register [26:24]

Register (Abbrev): out8_div2_cnfg[26:24]
Address: 0x359
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved					out8_div_cnfg[26:24]		

Bit	Name	Description	Def. Value
7:3	reserved	reserved	0000_0
2:0	out8_div_cnfg[26:24]	N2, actual ratio is N2+1. Out divider ratio config for N2, integer number from 1 to 2^25.	000

Output 8 Phase 1 Configuration Register [4:0]

Register (Abbrev): out8_ph1_cnfg[4:0]
Address: 0x35A
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved			out8_ph1_cnfg[4:0]				

Bit	Name	Description	Def. Value
7:5	reserved	reserved	000
4:0	out8_ph1_cnfg[4:0]	Phase adjustment configure of N1. The step size equals to the input clock period of N1. The number in this register should not larger be than the number in out8_div1_cnfg[4:0].	0_0000

Output 8 Phase 2 Configuration Register [7:0]

Register (Abbrev): out8_ph2_cnfg[7:0]
Address: 0x35B
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
out8_ph2_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	out8_ph2_cnfg[7:0]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1. The number in this register should not be larger than the number in out8_div2_cnfg[24:0].	0000_0000

Output 8 Phase 2 Configuration Register [15:8]

Register (Abbrev): out8_ph2_cnfg[15:8] Address: 0x35C Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out8_ph2_cnfg[15:8]							

Bit	Name	Description	Def. Value
7:0	out8_ph2_cnfg[15:8]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1. The number in this register should not be larger than the number in out8_div2_cnfg[24:0].	0000_0000

Output 8 Phase 2 Configuration Register [23:16]

Register (Abbrev): out8_ph2_cnfg[23:16] Address: 0x35D Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
out8_ph2_cnfg[23:16]							

Bit	Name	Description	Def. Value
7:0	out8_ph2_cnfg[23:16]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1. The number in this register should not be larger than the number in out8_div2_cnfg[24:0].	0000_0000

Output 8 Phase 2 Configuration Register [26:24]

Register (Abbrev): out8_ph2_cnfg[26:24] Address: 0x35E Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
reserved					out8_ph2_cnfg[26:24]		

Bit	Name	Description	Def. Value
7:3	reserved	reserved	0000_0
2:0	out8_ph2_cnfg[26:24]	Phase adjustment of N2. The step size equals to the input clock period of N2 which is the output of N1. The number in this register should not be larger than the number in out8_div2_cnfg[24:0].	000

Output 8 Fine Phase Configuration Register

Register (Abbrev): out8_fine_ph_cnfg
Address: 0x35F
Type: RW
Default Value: 1100_0000

7	6	5	4	3	2	1	0
out8_pulse_cnfg[1:0]		reserved			out8_fine_ph_cnfg[2:0]		

Bit	Name	Description	Def. Value
7:6	out8_pulse_cnfg[1:0]	Output pulse configure for 1PPS output, N1 should be set to 'd32, T equals to output clock period of N1 which is 128 VCO period. 00: 2 T 01: 20 T 10: 2000 T 11: 50% duty cycle	11
5:3	reserved	reserved	00_0
2:0	out8_fine_ph_cnfg[2:0]	Fine phase adjustment. Step size equals to 1/2 of VCO period.	000

Output 9 Frequency Configuration Register

Register (Abbrev): out9_freq_cnfg
Address: 0x360
Type: RW
Default Value: 1000_0000

7	6	5	4	3	2	1	0
out9_pdn	out9_inv	dpll3_input_fail	ami_out_duty	400hz_sel	reserved		out9_path_sel

Bit	Name	Description	Def. Value
7	out9_pdn	0: Disable (output low) 1: Enable (see dpll3_input_fail)	1
6	out9_inv	0: Not inverted 1: Inverted	0
5	dpll3_input_fail	0: out9 enable/disable depends on out_en only 1: out9 is disabled if dpll3 input failed.	0
4	ami_out_duty	0: 50:50 duty cycle 1: 5:8 duty cycle	0
3	400hz_sel	This bit defines the ami format on out9. 0: 64k + 8kHz 1: 64k + 8k + 400Hz	0
2:1	reserved	reserved	00
0	out9_path_sel	These bits select an input to OUT9. 0: The output of DPLL3 DPLL path 1: The output of DPLL1 path.	0

Output 10 Configuration Register

Register (Abbrev): out10_cnfg
Address: 0x36C
Type: RW
Default Value: 1000_0000

7	6	5	4	3	2	1	0
out10_sync_en	out_inv	out_squelch[1:0]		reserved			

Bit	Name	Description	Def. Value
7	out10_sync_en	Enables the 1 Hz synchronization for the output divider. 0: Sync disabled 1: Sync enabled	1
6	out_inv	0: Output not inverted 1: Output inverted	0
5:4	out_squelch[1:0]	0x: No squelch 10: Squelch to 0 11: Squelch to 1	00
3:0	reserved	reserved	0000

Output 10 Frequency Configuration Register [7:0]

Register (Abbrev): out10_freq_cnfg[7:0]
Address: 0x36D
Type: RW
Default Value: 0000_0101

7	6	5	4	3	2	1	0
out_div_cnfg[7:0]							

Bit	Name	Description	Def. Value
7:0	out_div_cnfg[7:0]	out divider ratio config, actual ratio is M+1 fout = fclk_sdm/(M+1) here, fclk_sdm = N*64kHz	0000_0101

Output 10 Frequency Configuration Register [14:8]

Register (Abbrev): out10_freq_cnfg[14:8]
Address: 0x36E
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved	out_div_cnfg[14:10]					out_div_cnfg[9:8]	

Bit	Name	Description	Def. Value
7	reserved	reserved	0

Output 10 Frequency Configuration Register [14:8]

Register (Abbrev): out10_freq_cnfg[14:8] Address: 0x36E Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
6:2	out_div_cnfg[14:10]		out divider ratio config, actual ratio is M+1 fout = fclk_sdm/(M+1) here, fclk_sdm = N*64kHz				0000
1:0	out_div_cnfg[9:8]		out divider ratio config, actual ratio is M+1 fout = fclk_sdm/(M+1) here, fclk_sdm = N*64kHz				0000

Output 11 Configuration Register

Register (Abbrev): out11_cnfg Address: 0x378 Type: RW Default Value: 1000_0000							
7	6	5	4	3	2	1	0
out11_sync_en	out_inv	out_squelch[1:0]		reserved			
Bit	Name		Description				Def. Value
7	out11_sync_en		Enables the 1 Hz synchronization for the output divider. 0: Disable sync. 1: Enable sync.				1
6	out_inv		0: Output not inverted 1: Output inverted				0
5:4	out_squelch[1:0]		0x: No squelch 10: Squelch to 0 11: Squelch to 1				00
3:0	reserved		reserved				0000

Output 11 Frequency Configuration Register [7:0]

Register (Abbrev): out11_freq_cnfg[7:0] Address: 0x379 Type: RW Default Value: 0010_1111							
7	6	5	4	3	2	1	0
out_div_cnfg[7:0]							
Bit	Name		Description				Def. Value
7:0	out_div_cnfg[7:0]		M. Out divider ratio config, actual ratio is M+1 fout=fclk_sdm/(M+1) here, fclk_sdm=N*64kHz				0010_1111

Output 11 Frequency Configuration Register [14:8]

Register (Abbrev): out11_freq_cnfg[14:8]
Address: 0x37A
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved	out_div_cnfg[14:8]					out_div_cnfg[9:8]	

Bit	Name	Description	Def. Value
7	reserved	reserved	0
6:2	out_div_cnfg[14:8]	M. Out divider ratio config, actual ratio is M+1 fout=fclk_sdm/(M+1) here, fclk_sdm=N*64kHz	000_00
1:0	out_div_cnfg[9:8]		00

Output Frame/Multi-Frame Sync Configuration Register

Register (Abbrev): fr_mfr_path_cnfg
Address: 0x37E
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved				fr_pdn	fr_path_sel	mfr_pdn	mfr_path_sel

Bit	Name	Description	Def. Value
7:4	reserved	reserved	0000
3	fr_pdn	0: frsync_8k output active 1: frsync_8k output power down to 0	0
2	fr_path_sel	0: frsync_8k_1pps from DPLL1 1: frsync_8k_1pps from DPLL2	0
1	mfr_pdn	0: mfrsync_2k output active 1: mfrsync_2k output power down to 0	0
0	mfr_path_sel	0: mfrsync_2k_1pps from DPLL1 1: mfrsync_2k_1pps from DPLL2	0

6.2 Power-Down Registers

Reserved Register

Register (Abbrev): rsvd Address: 0x380 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0

Bit	Name	Description	Def. Value
7:0	Reserved	Reserved	0000

Soft Reset Register

Register (Abbrev): soft_rst Address: 0x381 Type: RW Default Value: 0001_0110							
7	6	5	4	3	2	1	0
soft_rst	reserved		reserved	reserved	reserved	reserved	reserved

Bit	Name	Description	Def. Value
7	soft_rst	A soft reset is required to ensure the APLLs recalibrate based on the registers values loaded at boot time from the EEPROM. The soft reset will perform the same functions as a hard reset with the exception of reverting the register values to the default values and re-sampling the bootstrap pins. The soft reset should be performed following each power up sequence. The soft-rst bit is self clearing.	0
6:5	reserved	reserved	00
4	reserved	reserved	00
3	reserved	reserved	00
2	reserved	reserved	00
1	reserved	reserved	00
0	reserved	reserved	00

Reserved Register

Register (Abbrev): rsvd Address: 0x382 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
reserved							ms_invert

Bit	Name	Description	Def. Value
7:1	reserved	reserved	0000_000
0	ms_invert	0: MS_SL pin used as is 1: MS_SL pin is inverted before used	0

Reserved Register

Register (Abbrev): rsvd Address: 0x383 Type: RW Default Value: 1000_0000							
7	6	5	4	3	2	1	0
reserved							

Bit	Name	Description	Def. Value
7:0	reserved	EEPROM only: the EEPROM at this address must contain the value shown in the “Default Value” column.	1000_0000

Reserved Register

Register (Abbrev): rsvd Address: 0x384 Type: RW Default Value: 0010_0000							
7	6	5	4	3	2	1	0
reserved							

Bit	Name	Description	Def. Value
7:0	reserved	EEPROM only: the EEPROM at this address must contain the value shown in the “Default Value” column.	0010_0000

Reserved Register

Register (Abbrev): rsvd Address: 0x385, 0x386, 0x387 Type: RO Default Value: 0010_0000							
7	6	5	4	3	2	1	0
reserved							

Bit	Name	Description	Def. Value
7:0	reserved	reserved	0010_0000

Reserved Register

Register (Abbrev): rsvd Address: 0x388, 0x389, 0x38A Type: RW Default Value: 0010_0000							
7	6	5	4	3	2	1	0
reserved							

Bit	Name	Description	Def. Value
7:0	reserved	EEPROM only. The EEPROM at this address must contain the value shown in the “Default Value” column.	0010_0000

Reserved Register

Register (Abbrev): rsvd Address: 0x38B, 0x38C, 0x38D Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
reserved							

Bit	Name	Description	Def. Value
7:0	reserved	EEPROM only. The EEPROM at this address must contain the value shown in the “Default Value” column.	0000_0000

Reserved Register

Register (Abbrev): rsvd Address: 0x38E Type: RW Default Value: 0000_0100							
7	6	5	4	3	2	1	0
reserved							
Bit	Name	Description					Def. Value
7:0	reserved	reserved					0000_0100

Reserved Register

Register (Abbrev): rsvd Address: 0x38F Type: RW Default Value: 0001_0000							
7	6	5	4	3	2	1	0
reserved							
Bit	Name	Description					Def. Value
7:0	reserved	reserved					0001_0000

Reserved Register

Register (Abbrev): rsvd Address: 0x390 Type: RW Default Value: 1110_0101							
7	6	5	4	3	2	1	0
reserved							
Bit	Name	Description					Def. Value
7:0	reserved	reserved					1110_1010

Reserved Register

Register (Abbrev): rsvd Address: 0x391 Type: RW Default Value: 0000_0111							
7	6	5	4	3	2	1	0
reserved							
Bit	Name	Description					Def. Value
7:0	reserved	reserved					0000_0111

Reserved Register

Register (Abbrev): rsvd Address: 0x392, 0x393 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
reserved							

Bit	Name	Description	Def. Value
7:0	reserved	EEPROM only. The EEPROM at this address must contain the value shown in the “Default Value” column.	0000_0000

Reserved Register

Register (Abbrev): rsvd Address: 0x394 Type: RW Default Value: 0000_0011							
7	6	5	4	3	2	1	0
reserved							

Bit	Name	Description	Def. Value
7:0	reserved	EEPROM only. The EEPROM at this address must contain the value shown in the “Default Value” column.	0000_0011

Reserved Register

Register (Abbrev): rsvd Address: 0x395 Type: RW Default Value: 1010_0000							
7	6	5	4	3	2	1	0
reserved							

Bit	Name	Description	Def. Value
7:0	reserved	EEPROM only. The EEPROM at this address must contain the value shown in the “Default Value” column.	1010_0000

Reserved Register

Register (Abbrev): rsvd Address: 0x396 Type: RW Default Value: 0000_0000							
7	6	5	4	3	2	1	0
reserved							

Bit	Name	Description	Def. Value
7:0	reserved	EEPROM only. The EEPROM at this address must contain the value shown in the “Default Value” column.	0000_0000

Reserved Register

Register (Abbrev): rsvd Address: 0x397 Type: RW Default Value: 1100_0001							
7	6	5	4	3	2	1	0
reserved							

Bit	Name	Description	Def. Value
7:0	reserved	EEPROM only. The EEPROM at this address must contain the value shown in the “Default Value” column.	1100_0001

Reserved Register

Register (Abbrev): rsvd Address: 0x398 Type: RW Default Value: 0000_0010							
7	6	5	4	3	2	1	0
reserved							

Bit	Name	Description	Def. Value
7:0	reserved	EEPROM only. The EEPROM at this address must contain the value shown in the “Default Value” column.	0000_0010

Reserved Register

Register (Abbrev): rsvd Address: 0x399 Type: RW Default Value: 0100_0011							
7	6	5	4	3	2	1	0
reserved							

Bit	Name	Description	Def. Value
7:0	reserved	EEPROM only. The EEPROM at this address must contain the value shown in the “Default Value” column.	0100_0011

Reserved Register

Register (Abbrev): rsvd Address: 0x39A Type: RW Default Value: 0000_0011							
7	6	5	4	3	2	1	0
reserved							

Bit	Name	Description	Def. Value
7:0	reserved	EEPROM only. The EEPROM at this address must contain the value shown in the “Default Value” column.	0000_0011

Reserved Register

Register (Abbrev): rsvd Address: 0x39B Type: RW Default Value: 0000_0100							
7	6	5	4	3	2	1	0
reserved							

Bit	Name	Description	Def. Value
7:0	reserved	EEPROM only. The EEPROM at this address must contain the value shown in the “Default Value” column.	0000_0100

Reserved Register

Register (Abbrev): rsvd Address: 0x39C Type: RW Default Value: 0000_0011							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
reserved							
Bit	**Name**	**Description**					**Def. Value**
7:0	reserved	EEPROM only. The EEPROM at this address must contain the value shown in the “Default Value” column.					0000_0011

Reserved Register

Register (Abbrev): rsvd Address: 0x39D Type: RW Default Value: 0101_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
reserved							
Bit	**Name**	**Description**					**Def. Value**
7:0	reserved	EEPROM only. The EEPROM at this address must contain the value shown in the “Default Value” column.					0101_0000

EEPROM CRC Register

Register (Abbrev): eeprom_crc Address: 0x39E Type: RW Default Value: N/A							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
crc[7:0]							
Bit	**Name**	**Description**					**Def. Value**
7:0	crc[7:0]	EEPROM only. Must contain the CRC8 value of all EEPROM data from x000 to x39D.					N/A

7 APLL3 Register Map
(82P33931 and 82P33831 only)

Table 2. APLL3 Register Map

Address	Register (Abbrev)	Register Name
Global Control Registers		
0x00	control	Register Configuration Select
0x01	clk_sel	Input Clock Select
0x0E	fsel	Crystal Select
0x0F	out{12:13}_config – Starting address	Output{12:13} Configuration
Configuration Registers		
0x02	pd0_sel[7:0] – Starting address	Pre-divider{0:1} Select
0x03	pd0_sel[14:8] – Starting address	Pre-divider{0:1} Select
0x06	m0[7:0] – Starting address	Feedback Divider{0:1}
0x07	m0[14:8] – Starting address	Feedback Divider{0:1}
0x0A	OUT12_odsel0 – Starting address	OUT12 Output Divider Selection{0:1}
0x0C	OUT13_odsel0 – Starting address	OUT13 Output Divider Selection{0:1}

7.1 Global Control Registers

Register Configuration Select

Register (Abbrev): control
Address: 0x00
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved						config	reserved

Bit	Name	Description	Def. Value
7:2	reserved	reserved	0000_00
1	config	This bit selects which of 2 register configurations is used. 0: Configuration 0 1: Configuration 1	0
0	reserved	reserved	0

Input Clock Select

Register (Abbrev): clk_sel Address: 0x01 Type: RW Default Value: 0000_0001							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
reserved							clk_sel

Bit	Name	Description	Def. Value
7:1	reserved	reserved	0000_000
0	clk_sel	This bit selects which input is used. 0: External 1: Internal (default)	1

Crystal Select

Register (Abbrev): fsel Address: 0x0E Type: RW Default Value: 0000_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
reserved							fsel

Bit	Name	Description	Def. Value
7:1	reserved	reserved	0000_000
0	fsel	This bit selects the reference XTAL used by VCXO. 0: XTAL1 (default) 1: XTAL2	0

Output{12:13} Configuration

Register (Abbrev): out{12:13}_config Address: 0x0F, 0x10 Type: RW Default Value: 0000_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
reserved						out{12:13}_pecl_lvds	out{12:13}_enable

Bit	Name	Description	Def. Value
7:2	reserved	reserved	0000_000
1	out{12:13}_pecl_lvds	This bit selects output {12:13} output signal configuration. 0: LVPECL (default) 1: LVDS	0

Output{12:13} Configuration

Register (Abbrev): out{12:13}_config Address: 0x0F, 0x10 Type: RW Default Value: 0000_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
0	out{12:13}_enable		This bit selects output {12:13} output enable. 0: Disable (default) 1: Enable				0

7.2 Configuration Registers

Pre-divider{0:1} Select

Register (Abbrev): pd{0:1}_sel Address: 0x02, 0x04, 0x03, 0x05 Type: RW Default Value: 0000_1100_0011_0101							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
pd0_sel[7:0]							
reserved	pd0_sel[14:0]						

Bit	Name	Description	Def. Value
7:0	pd{0:1}_sel[7:0]	The PDSEL0[14:0] bits represent a unsigned integer for the APLL pre-divider value for configuration 0. These bits must always be programed to 000 0000 0000 0100 (/4) or higher, except for /1 where they can be programmed to 000 0000 0000 0001. The default value of 0xC35 represents /3125.	0011_0101
7	reserved	reserved	0
6:0	pd{0:1}_sel[14:8]	The PDSEL0[14:0] bits represent a unsigned integer for the APLL pre-divider value for configuration 0. These bits must always be programed to 000 0000 0000 0100 (/4) or higher, except for /1 where they can be programmed to 000 0000 0000 0001. The default value of 0xC35 represents /3125.	000_1100

Feedback Divider{0:1}

Register (Abbrev): m{0:1} Address: 0x06, 0x08, 0x07, 0x09 Type: RW Default Value: 0000_1100_0011_0101							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
m0[7:0]							

Feedback Divider{0:1}

Register (Abbrev): m{0:1} Address: 0x06, 0x08, 0x07, 0x09 Type: RW Default Value: 0000_1100_0011_0101							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
reserved	m0[14:0]						

Bit	Name	Description	Def. Value
7:0	m{0:1}[7:0]	The M0[15:0] bits represent a unsigned integer for the APLL feedback divider value for configuration 0. These bits must always be programed to 000 0000 0000 0101 (/5) or higher. The default value of C35H represents /3125.	0011_0101
7	reserved	reserved	0
6:0	m{0:1}[14:8]	The M0[15:0] bits represent a unsigned integer for the APLL feedback divider value for configuration 0. These bits must always be programed to 000 0000 0000 0101 (/5) or higher. The default value of C35H represents /3125.	000_1100

OUT12 Output Divider Selection{0:1}

Register (Abbrev): out12_odsel{0:1} Address: 0x0A, 0x0B Type: RW Default Value: 0000_0000							
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
reserved					out12_odsel0[2:0]		

Bit	Name	Description	Def. Value
7:3	reserved	reserved	0000_0
2:0	out12_odsel{0:1}	The OUT12_ODSEL{0:1} bits represent an output divider value for OUT12 for configuration 0. 000: Divide by 25 (default) 001: Divide by 5 010: Divide by 4 011: Divide by 2 1XX: Divide by 1	000

OUT13 Output Divider Selection{0:1}

Register (Abbrev): out13_odsel{0:1}
Address: 0x0C, 0x0D
Type: RW
Default Value: 0000_0000

7	6	5	4	3	2	1	0
reserved					out13_odsel0[2:0]		

Bit	Name	Description	Def. Value
7:3	reserved	reserved	0000_0
2:0	out13_odsel{0:1}	The OUT13_ODSEL{0:1} bits represent an output divider value for OUT13 for configuration 0. 000: Divide by 8 (default) 001: Divide by 5 010: Divide by 4 011: Divide by 2 1XX: Divide by 1	000

8 82P33xxx I/O Mapping

Type	Register Map	82P33831/ 82P33931	82P33810/ 82P33910	82P33814/ 82P33914	82P33813/ 82P33913
AMI	IN01	IN01	IN01		
	IN02	IN02	IN02		
DIFF	IN03	IN03	IN03	IN01	IN01
	IN04	IN04	IN04	IN02	IN02
	IN05	IN05	IN05	IN03	IN03
	IN06	IN06	IN06	IN04	IN04
	IN07	IN07	IN07		
	IN08	IN08	IN08		
CMOS	IN09	IN09	IN09	IN05	IN05
	IN10	IN10	IN10	IN06	IN06
	IN11	IN11	IN11		
	IN12	IN12	IN12		
	IN13	IN13	IN13		
	IN14	IN14	IN14		

	Type	Register Map	82P33831/ 82P33931	82P33810/ 82P33910	82P33814/ 82P33914	82P33813/ 82P33913
DPLL1/DPLL2/APLL1	CMOS	OUT01	OUT01	OUT01	OUT01	OUT01
APLL1		OUT02	OUT02	OUT02	OUT02	OUT02
	DIFF	OUT03	OUT03	OUT03	OUT03	OUT03
		OUT04	OUT04	OUT04	OUT04	OUT04
APLL2		OUT05	OUT05	OUT05	OUT05	
		OUT06	OUT06	OUT06	OUT06	
	CMOS	OUT07	OUT07	OUT07	OUT07	
DPLL1/DPLL2/APLL2		OUT08		OUT08	OUT08	OUT05
DPLL	AMI	OUT09	OUT08	OUT09		
DPLL3	CMOS	OUT10	OUT09	OUT10	OUT09	OUT06
		OUT11	OUT10	OUT11	OUT10	OUT07
APLL3	DIFF	OUT12	OUT11			
		OUT13	OUT12			

9 Revision History

Revision Date	Description of Change
June 11, 2021	Updates to registers descriptions: dpll{1:2}_tod_wr_trigger[3:0] Register (Abbrev): dpll{1:2}_holdover_freq_cnfg[39:0] Register (Abbrev): dpll{1:2}_sync_edge_cnfg
December 14, 2020	Updated Interrupt Configuration Register, address 0x06 definition.
January 19, 2017	Updated APLL3 register map.
August 12, 2015	Initial release.

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