Integrated Device Technology

Clocks for NXP QorIQ and Layerscape CPUs

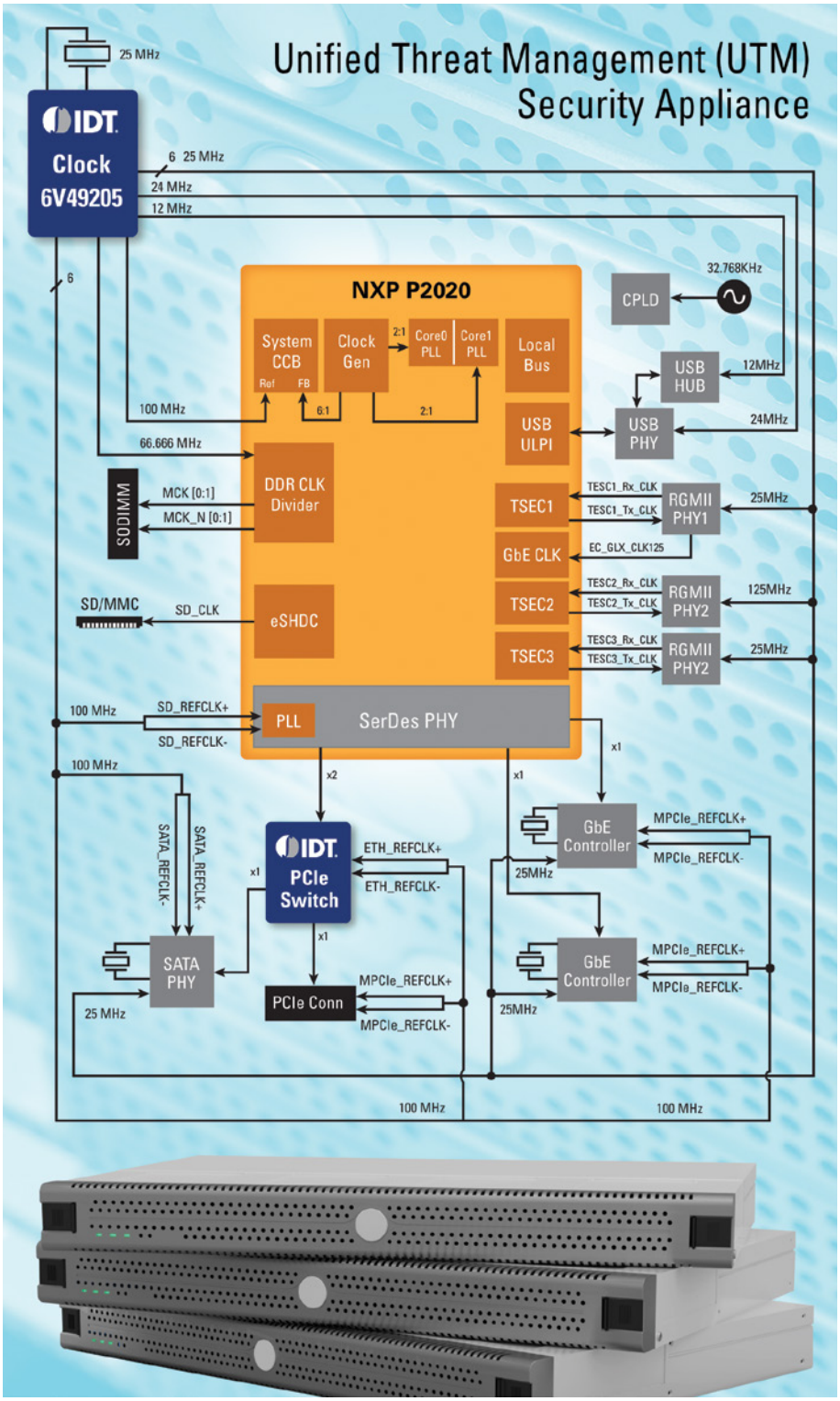
IDT has the industry's broadest portfolio of timing solutions for industrial, networking, consumer and embedded applications. With products uniquely complementing the NXP™ QorIQ™ and Layerscape™ processors, IDT provides the performance, flexibility, design expertise, reliability and manufacturing capabilities to ensure customer success.

All-in-One Clock Solutions

- Spread-spectrum capable for EMI reduction
- Highly integrated single-chip solutions replace up to
  - 11 crystals
  - 2 oscillators
  - 3 clock synthesizers
- Low-power PCIe® outputs with integrated terminations
- PCIe Gen1/2/3 compliant PCIe outputs
- < 700fs RMS phase jitter
- Signal integrity tuning
- As little as 400mW power dissipation

Building Block Clock Solutions

- Mix and match various clocks to support desired frequencies and data rates
- Clock generators
  - System and DDR clocks
  - SERDES clocks for PCIe Gen1-4 and 100GbE
- Clock distribution
  - Fanout buffers with < 50fs RMS additive phase jitter
  - PCIe fanout and zero delay buffers for PCIe Gen1-4
  - PCIe clock multiplexers for PCIe Gen1-4
  - Supports HCSL, HSTL, LVPECL, LVDS and LVCMOS signaling standards



Clocks for NXP QorIQ and Layerscape CPUs

Selecting clocks for QorIQ designs is straightforward. Once the "Qor" clocking requirements of the NXP QorIQ processors are tsatisfied (SYS_CCB clock, etc.), product selection proceeds to other required clocks, such as USB or 25M for Ethernet. Then the desired data rates, frequencies and number of SERDES links are factored into the clock selection. IDT offers both integrated and building block approaches to QorIQ timing solutions as shown in the product selector tables.

Clocking Solutions for NXP QorIQ and Layerscape Processors

"All-in-One" Clock Solutions

	NXP Clock Modes (only 1 at a time is used)			Other Clocks			SERDES Clock Pairs	
Part Number	**SYS_CLK/ DDR_CLK**	**DIFSYS_CLK**	**PS_XI**	**GTX_CLK**	**USB_CLK (MHz)**	**Other LVCMOS Outputs (MHz)**	**Pairs (MHz)**	**App Jitter Compliance**
6V49205	Yes	Yes	Yes (24M Only)	Yes	2 x 12/24	6 x 25 2 x 2.048	6 x 100/125	PCIe Gen1-2, SGMII, sRIO 1x-2x SATA/SATA3G
5P49V5907			Yes		Yes	1 x REF	4 x 50 - 167	PCIe Gen1-3, SGMII 1x-2.5x, sRIO 1x-2x SATA/SATA3G, XAUI, XAUI 10G
5P49V5908							8 x 50 - 167	

"Building Block" Clock Generators

Part Number	**SYS_CLK/ DDR_CLK**	**DIFSYS_CLK**	**PS_XI**	**GTX_CLK**	**USB_CLK (MHz)**	**Other LVCMOS Outputs (MHz)**	**Pairs (MHz)**	**App Jitter Compliance**
5P30521	Yes	Yes	Yes	Yes	Yes	1 x 32.768KHz	2 x 1 - 500	PCIe Gen1-3
5P30523								
5P49V69xx						1 x REF	4 x 1 - 350	500fs RMS
840S07		No	No		-	-	-	-
MP9855					-	2x 25	-	-
840NT4		-	-	-	-	1 x 25 1 x 3.125 1 x 1.5625	-	-
840NT4-01	-	-	-	-	1 x 24	1 x 25 8 x 125	-	-
8T49N222	-	-	-	-	-	-	2 x 7.7 - 1200	300fs RMS
8T49N004	-	-	-	-	-	-	4 x 15.16 - 1250	212fs RMS
8T49N006	-	-	-	-	-	-	6 x 15.16 - 1250	
8T49N008	-	-	-	-	-	-	8 x 15.16 - 1250	
8T49N012	-	-	-	-	-	-	12 x 15.16 - 1250	
8T49NS0312	-	Yes	Yes	-	-	-	12 x 10.9 - 2500	89fs RMS

Clocks for NXP QorIQ and Layerscape CPUs

"Building Block" Non-PLL Fanout Buffers and Multiplexers (< 50fs RMS additive phase jitter)								
Part Number	**Inputs (#)**	**Input Type**	**Outputs (#)**	**Output Type**	**Output Freq (MHz)**	**Input Freq (MHz)**	**Core Supply (V)**	**Output Supply (V)**
5PB1104	1	LVCMOS	4	LVCMOS	0 - 200	0 - 200	1.8, 2.5, 3.3	1.8, 2.5, 3.3
5PB1106			6					
5PB1108			8					
5PB1110			10					
8312I			12		0 - 250	0 - 250		
8P34S1102I		CML, LVDS, LVPECL	2	LVDS	0 - 1200	0 - 1200	1.8	1.8
8P34S1106i			6					
8SLVP1102I			2	LVPECL	0 - 2000	0 - 2000	2.5, 3.3	2.5, 3.3
8SLVP1104I			4					
8530-01		HCSL, HSTL, LVDS, LVPECL, SSTL	16		0 - 500	0 - 500	3.3	3.3
8SLVP2102I	2	CML, LVDS, LVPECL	4		0 - 2000	0 - 2000	2.5, 3.3	2.5, 3.3
8SLVP2104I			8					
8SLVP2106I		LVDS, LVPECL	12					
8SLVP2108I		LVPECL	16					
8T39S04A	3	Xtal, HCSL, HSTL, LVCMOS, LVDS, LVPECL	4	HCSL, LVDS, LVPECL				
8T39S06A			6					
8T39S08A			8					

"Building Block" PCI Express Clock Generators (LP-HCSL outputs)								
Part Number	**Input (MHz)**	**Spread Spectrum Support**	**Outputs (#)**	**Operating Frequency (MHz)**	**Lead Count (#)**	**Package Size (mm)**	**Supply Voltage (V)**	**App Jitter Compliance**
9FGV0241	25	Yes	2	100	24	4 x 4	1.8	PCIe Gen1-4
9FGV0441			4		32	5 x 5		
9FGV0641			6		40	5 x 5		
9FGV0841			8		48	6 x 6		
9FGL0241			2		24	4 x 4	3.3	
9FGL0441			4		32	5 x 5		
9FGL0641			6		40	5 x 5		
9FGL0841			8		48	6 x 6		

"Building Block" non-PLL Fanout Buffers and Multiplexers (HCSL inputs and LP-HCSL outputs)								
Part Number	**Inputs**	**Spread Spectrum Support**	**Outputs (#)**	**Operating Frequency (MHz)**	**Lead Count (#)**	**Package Size (mm)**	**Supply Voltage (V)**	**App Jitter Compliance**
9DBV0541	1	Yes	5	1 - 200	32	5 x 5	1.8	PCIe Gen1-4
9DBV0741			7		40	5 x 5		
9DBV0941			9		48	6 x 6		
9DMV0141	2		1		16	3 x 3		
9DMV0441			4		24	4 x 4		
9DBL0741	1		7		40	5 x 5	3.3	
9DBL0941			9		48	6 x 6		
9DMV0441	2		4		24	4 x 4		

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"Building Block" PCI Express PLL Zero-Delay Buffers (HCSL inputs and LP-HCSL outputs)								
Part Number	**Inputs**	**Spread Spectrum Support**	**Outputs (#)**	**Operating Frequency (MHz)**	**Lead Count (#)**	**Package Size (mm)**	**Supply Voltage (V)**	**App Jitter Compliance**
9DBV0241	1	Yes	2	30 - 175	24	4 x 4	1.8	PCIe Gen1-4
9DBV0441			4		32	5 x 5		
9DBV0641			6		40	5 x 5		
9DBV0841			8		48	6 x 6		
9DBL0242			2		24	4 x 4	3.3	
9DBL0442			4		32	5 x 5		
9DBL0641			6		40	5 x 5		
9DBL0841			8		48	6 x 6		

To request samples, download documentation, or learn more visit: **idt.com/go/clocks**