RC38616A101

FemtoClock4 Family Custom Configuration

General Description

This document details the custom configuration that is programmed into the one time programmable (OTP) memory of the RC38616A101. Please refer to the device datasheet for further information about the device.

Configuration List

Configuration Name	Configuration Index
EEPROM_SDA_SCL	config_0
EEPROM_GPIO01	config_3

Output Frequency Overview

Config Index	OUT0	OUT1	OUT2	OUT3	OUT4	OUT5	OUT6	OUT7	OUT8
config_0	-	-	-	-	-	-	-	-	-
config_3	-	-	-	-	-	-	-	-	-

Config Index	OUT9	OUT10	OUT11	OUT12	OUT13	OUT14	OUT15	OUT16	OUT17
config_0	-	-	-	-	-	-	-	-	-
config_3	-	-	-	-	-	-	-	-	-

Configuration Selection Overview

Config Slot	Config Selection 1	Config Selection 0	Config Index
config_slot_0	GPIO1 Low	GPIO0 Low	config_0
config_slot_1	GPIO1 Low	GPIO0 High	config_0
config_slot_2	GPIO1 High	GPIO0 Low	config_0
config_slot_3	GPIO1 High	GPIO0 High	config_1

Serial Interface Configuration

Config Index	Serial Port Configuration
config_slot_0	SPI_NI2C_SEL pin determines mode (1=SPI,0=I2C)
config_slot_0	SPI_NI2C_SEL pin determines mode (1=SPI,0=I2C)
config_slot_0	SPI_NI2C_SEL pin determines mode (1=SPI,0=I2C)
config_slot_3	SPI_NI2C_SEL pin determines mode (1=SPI,0=I2C)

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I2C Address Selection Bits

Config Index	I2C Address Bit A2	I2C Address Bit A1	I2C Address Bit A0
config_slot_0	N/A	N/A	N/A
config_slot_3	N/A	N/A	N/A

GPIO Startup Configuration

Pin Number	GPIO	Function Description
D7	GPIO0	CONFIG_SEL0
D8	GPIO1	CONFIG_SEL1
E8	GPIO2	EEPROM_ADDR0
G6	GPIO3	EEPROM_ADDR1
H8	GPIO4	EEPROM_ADDR2
H7	GPIO5	N/A
H6	GPIO6	N/A
H5	GPIO7	N/A

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VDD Pins

Property	Value
VDD_VCO	1.8V
VDD_FAN	1.8V
VDDXO_DCD	1.8V
VDD_DIG	3.3V
VDD_CLK	1.8V
VDD_FOD0	1.8V
VDD_FOD1	1.8V
VDD_FOD2	1.8V
VDD_FOD3	1.8V
VDD_FOD4	1.8V
VDDO0	1.8V
VDDO1	1.8V
VDDO2	1.8V
VDDO3	1.8V
VDDO4	1.8V
VDDO5	1.8V
VDDO6	1.8V
VDDO7	1.8V
VDDO8	1.8V
VDDO9	1.8V
VDDO10	1.8V
VDDO11	1.8V
VDDO12	1.8V
VDDO13	1.8V
VDDO14	1.8V
VDDO15	1.8V
VDDO16	1.8V
VDDO17	1.8V

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EEPROM_SDA_SCL (config_slot_0, config_slot_1, config_slot_2) General Overview

Property	Value
Serial Interface	SPI_NI2C_SEL pin determines mode (1=SPI,0=I2C)
Dash Code Register (0x007-0x006)	0x0442
External EEPROM Load	Enabled
REFIN	80
CLKIN0	Disabled
CLKIN1	Disabled
CLKIN2	Disabled
CLKIN3	Disabled
CLKIN8	Disabled
CLKIN9	Disabled
CLKIN10	None (LVCMOS DC Coupled)
VCO Frequency	9.8304GHz
APLL Loop BW	~537.4588kHz

EEPROM_SDA_SCL (config_slot_0, config_slot_1, config_slot_2) GPIO Settings

Pin Number	GPIO	Function Description	Polarity	Output Drive Strength	Internal PU	Internal PD
D7	GPIO0	gpi (input)	Do not invert	N/A	Enable	Disable
D8	GPIO1	gpi (input)	Do not invert	N/A	Enable	Disable
E8	GPIO2	gpi (input)	Do not invert	N/A	Enable	Disable
G6	GPIO3	gpi (input)	Do not invert	N/A	Disable	Enable
H8	GPIO4	gpi (input)	Do not invert	N/A	Disable	Enable
H7	GPIO5	apll_lock (from frequency-based lock detect) (output)	Do not invert	CMOS Output mode and power supply of 1.8V.	Enable	Disable
H6	GPIO6	gpi (input)	Do not invert	N/A	Enable	Disable
H5	GPIO7	gpi (input)	Do not invert	N/A	Enable	Disable

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EEPROM_SDA_SCL (config_slot_0, config_slot_1, config_slot_2) Output Overview

Output	Reference Source	Frequency	Signal Type	Enable State
OUT0	VCO/N	-	HCSL (externally terminated)	powered down
OUT1	VCO/N	-	HCSL (externally terminated)	powered down
OUT2	VCO/N	-	HCSL (externally terminated)	powered down
OUT3	VCO/N	-	HCSL (externally terminated)	powered down
OUT4	VCO/N	-	HCSL (externally terminated)	powered down
OUT5	VCO/N	-	HCSL (externally terminated)	powered down
OUT6	VCO/N	-	HCSL (externally terminated)	powered down
OUT7	VCO/N	-	HCSL (externally terminated)	powered down
OUT8	VCO/N	-	HCSL (externally terminated)	powered down
OUT9	VCO/N	-	HCSL (externally terminated)	powered down
OUT10	VCO/N	-	HCSL (externally terminated)	powered down
OUT11	VCO/N	-	HCSL (externally terminated)	powered down
OUT12	VCO/N	-	HCSL (externally terminated)	powered down
OUT13	VCO/N	-	HCSL (externally terminated)	powered down
OUT14	VCO/N	-	HCSL (externally terminated)	powered down
OUT15	VCO/N	-	HCSL (externally terminated)	powered down
OUT16	VCO/N	-	HCSL (externally terminated)	powered down
OUT17	VCO/N	-	HCSL (externally terminated)	powered down

Note: All VDDOs need to ramp before or at the same time as other cores power rails.

EEPROM_SDA_SCL (config_slot_0, config_slot_1, config_slot_2) External EEPROM Settings

Property	Value
Part Number	R1EX24064ASA
Address Size	2-byte address
I2C Speed	400kHz
Length	8KB
EEPROM Load Pins	SCL_SCLK(SCL)/SDA_SDIO(SDA)
7-bit Address	1 0 1 0 A2 A1 A0
EEPROM Address Bit A2	GPIO4 (PIN H8)
EEPROM Address Bit A1	GPIO3 (PIN G6)
EEPROM Address Bit A0	GPIO2 (PIN E8)

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EEPROM_GPIO01 (config_slot_3) General Overview

Property	Value
Serial Interface	SPI_NI2C_SEL pin determines mode (1=SPI,0=I2C)
Dash Code Register (0x007-0x006)	0x0442
External EEPROM Load	Enabled
REFIN	80
CLKIN0	Disabled
CLKIN1	Disabled
CLKIN2	Disabled
CLKIN3	Disabled
CLKIN8	Disabled
CLKIN9	Disabled
CLKIN10	None (LVCMOS DC Coupled)
VCO Frequency	9.8304GHz
APLL Loop BW	~537.4588kHz

EEPROM_GPIO01 (config_slot_3) GPIO Settings

Pin Number	GPIO	Function Description	Polarity	Output Drive Strength	Internal PU	Internal PD
D7	GPIO0	gpi (input)	Do not invert	N/A	Enable	Disable
D8	GPIO1	gpi (input)	Do not invert	N/A	Enable	Disable
E8	GPIO2	gpi (input)	Do not invert	N/A	Enable	Disable
G6	GPIO3	gpi (input)	Do not invert	N/A	Disable	Enable
H8	GPIO4	gpi (input)	Do not invert	N/A	Disable	Enable
H7	GPIO5	apll_lock (from frequency-based lock detect) (output)	Do not invert	CMOS Output mode and power supply of 1.8V.	Enable	Disable
H6	GPIO6	gpi (input)	Do not invert	N/A	Enable	Disable
H5	GPIO7	gpi (input)	Do not invert	N/A	Enable	Disable

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EEPROM_GPIO01 (config_slot_3) Output Overview

Output	Reference Source	Frequency	Signal Type	Enable State
OUT0	VCO/N	-	HCSL (externally terminated)	powered down
OUT1	VCO/N	-	HCSL (externally terminated)	powered down
OUT2	VCO/N	-	HCSL (externally terminated)	powered down
OUT3	VCO/N	-	HCSL (externally terminated)	powered down
OUT4	VCO/N	-	HCSL (externally terminated)	powered down
OUT5	VCO/N	-	HCSL (externally terminated)	powered down
OUT6	VCO/N	-	HCSL (externally terminated)	powered down
OUT7	VCO/N	-	HCSL (externally terminated)	powered down
OUT8	VCO/N	-	HCSL (externally terminated)	powered down
OUT9	VCO/N	-	HCSL (externally terminated)	powered down
OUT10	VCO/N	-	HCSL (externally terminated)	powered down
OUT11	VCO/N	-	HCSL (externally terminated)	powered down
OUT12	VCO/N	-	HCSL (externally terminated)	powered down
OUT13	VCO/N	-	HCSL (externally terminated)	powered down
OUT14	VCO/N	-	HCSL (externally terminated)	powered down
OUT15	VCO/N	-	HCSL (externally terminated)	powered down
OUT16	VCO/N	-	HCSL (externally terminated)	powered down
OUT17	VCO/N	-	HCSL (externally terminated)	powered down

Note: All VDDOs need to ramp before or at the same time as other cores power rails.

EEPROM_GPIO01 (config_slot_3) External EEPROM Settings

Property	Value
Part Number	R1EX24064ASA
Address Size	2-byte address
I2C Speed	400kHz
Length	8KB
EEPROM Load Pins	GPIO0(SCL)/GPIO1(SDA)
7-bit Address	1 0 1 0 A2 A1 A0
EEPROM Address Bit A2	GPIO4 (PIN H8)
EEPROM Address Bit A1	GPIO3 (PIN G6)
EEPROM Address Bit A0	GPIO2 (PIN E8)

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Ordering Info

Part Number	Carrier Type
RC38616A101GBB#BC0	Tray
RC38616A101GBB#HC0	Tape, Pin 1 orientation: EIA-481-C
RC38616A101GBB#KC0	Tape, Pin 1 orientation: EIA-481-D/E

Notes:

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