

TEB0911 Master CPLD

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Overview

Firmware for PCB-Master CPLD with designator U27:LCMXO2-1200HC

Feature Summary

- Power Management
- Reset Management
- FMC JTAG Management
- FPGA Boot Mode
- RGPIO Interface to FPGA

Firmware Revision and supported PCB Revision

See Document Change History

Product Specification

Port Description

Name/ opt. VHD Name	Direction	Pin	Description
B64_T1	out	20	FPGA IO / Master RGPIO TX

B64_T2	in	19	FPGA IO / Master RGPIO RX
B64_T3	in	21	FPGA IO / Master RGPIO CLK
B65_T1	out	22	FPGA IO / Slave RGPIO TX
B65_T2	in	24	FPGA IO / Slave RGPIO RX
B65_T3	in	23	FPGA IO / Slave RGPIO CLK
C_TCK	in	131	JTAG
C_TDI	in	136	JTAG
C_TDO1	out	137	JTAG
C_TMS	in	130	JTAG
DDR_EN/EN_DDR	out	126	Power control
DDR_PG		121	Power control / <i>currently_not_used</i>
DONE	in	4	FPGA Control
DP_EN	out	34	Power control
EN_12V	out	114	Power control
EN_3.3V	out	112	Power control
EN_A_3V3	out	143	Power control
EN_AF_1V8	out	110	Power control
EN_B_3V3	out	74	Power control
EN_BC_1V8	out	84	Power control
EN_C_3V3	out	76	Power control
EN_D_3V3	out	78	Power control
EN_DE_1V8	out	77	Power control
EN_E_3V3	out	82	Power control
EN_F_3V3	out	104	Power control
EN_GT_L	out	122	Power control
EN_GT_R	out	125	Power control
EN_SFP	out	111	Power control
EN_SFP_SSD	out	3	Power control
EN_VCCINT	out	119	Power control
FAN_A_EN	out	106	Fan control
FAN_B_EN	out	83	Fan control
FAN_C_EN	out	81	Fan control
FAN_D_EN	out	75	Fan control
FAN_E_EN	out	73	Fan control
FAN_F_EN	out	109	Fan control
FMC12V_EN/EN_FMC_12V	out	95	Power control
FMC12V_PG		93	Power control / <i>currently_not_used</i>
FMCA_PG_C2M		142	Power control / <i>currently_not_used</i>
FMCA_PG_M2C		141	Power control / <i>currently_not_used</i>
FMCA_PRSENT	in	140	FMC

FMCA_TCK	out	139	FMC / JTAG
FMCA_TDI	out	138	FMC / JTAG
FMCA_TDO	in	133	FMC / JTAG
FMCA_TMS	out	132	FMC / JTAG
FMCB_PG_C2M		38	FMC / <i>currently_not_used</i>
FMCB_PG_M2C		39	<i>FMC / currently_not_used</i>
FMCB_PRSNT	in	40	FMC
FMCB_TCK	out	41	FMC / JTAG
FMCB_TDI	out	42	FMC / JTAG
FMCB_TDO	in	43	FMC / JTAG
FMCB_TMS	out	44	FMC / JTAG
FMCC_PG_C2M		54	FMC / <i>currently_not_used</i>
FMCC_PG_M2C		55	FMC / <i>currently_not_used</i>
FMCC_PRSNT	in	56	FMC
FMCC_TCK	out	57	FMC / JTAG
FMCC_TDI	out	58	FMC / JTAG
FMCC_TDO	in	59	FMC / JTAG
FMCC_TMS	out	60	FMC / JTAG
FMCD_PG_C2M		45	FMC / <i>currently_not_used</i>
FMCD_PG_M2C		47	FMC / <i>currently_not_used</i>
FMCD_PRSNT	in	61	FMC
FMCD_TCK	out	48	FMC / JTAG
FMCD_TDI	out	49	FMC / JTAG
FMCD_TDO	in	50	FMC / JTAG
FMCD_TMS	out	52	FMC / JTAG
FMCE_PG_C2M		62	FMC / <i>currently_not_used</i>
FMCE_PG_M2C		65	FMC / <i>currently_not_used</i>
FMCE_PRSNT	in	67	FMC
FMCE_TCK	out	68	FMC / JTAG
FMCE_TDI	out	69	FMC / JTAG
FMCE_TDO	in	70	FMC / JTAG
FMCE_TMS	out	71	FMC / JTAG
FMCF_PG_C2M		107	FMC / <i>currently_not_used</i>
FMCF_PG_M2C		105	FMC / <i>currently_not_used</i>
FMCF_PRSNT	in	100	FMC
FMCF_TCK	out	99	FMC / JTAG
FMCF_TDI	out	98	FMC / JTAG
FMCF_TDO	in	97	FMC / JTAG
FMCF_TMS	out	96	FMC / JTAG
INIT_B	in	5	FPGA Control

JTAGENB	--	120	enable JTAG access to CPLD (one CPLD, zero FMC chain)
MIO24		1	FGPA MIO / currently_not_used
MIO25		2	FGPA MIO / currently_not_used
MODE0	out	10	FPGA Boot Mode
MODE1	out	12	FPGA Boot Mode
MODE2	out	9	FPGA Boot Mode
MODE3	out	11	FPGA Boot Mode
MR	out	92	FPGA Control
PG_12V	in	113	Power control
PG_FPD	in	115	Power control
PG_GT_L	in	13	Power control
PG_GT_R	in	35	Power control
PG_PSGT	in	128	Power control
PROG_B	out	6	FPGA Control
PSGT_EN/EN_GT_PS	out	117	Power control
SC_IO0	out	25	Slave CPLD / Reset
SC_IO1		26	Slave CPLD / currently_not_used
SC_IO2		27	Slave CPLD / currently_not_used
SC_IO3	in	28	Slave CPLD / Slave RGPIO TX_IN
SC_IO4	out	32	Slave CPLD / Slave RGPIO RX_OUT
SC_IO5	out	33	Slave CPLD / Slave RGPIO CLK_out
SC_SW1	in	127	DIP Switch S3-3
SC_SW2	in	85	DIP Switch S3-4
SC1_IO_SB		91	Slave CPLD / currently_not_used
SC2_IO_SB		86	Slave CPLD / currently_not_used
USR_BUT2	in	94	Button / Global Reset

Functional Description

JTAG

JTAGENB set CPLD into the Chain for Firmware update. In normal mode every FMC JTAG will be set into the chain, when his FMCx_PRSENT is detected.

Power

EN_12V and EN_VCCINT are enabled on power up. All other power enables will be set, if PG_12V and PG_FPD are valid.

Reset

PROG_B always one. MR and SC_IO0 controlled by USR_BUT2 (S2) and power management.

Bootmode

SD Boot, when SC_SW1 is one else SQPI Boot.

S4-3	S4-5	Description
OFF	OFF	SD1 Boot
OFF	ON	PJTAG0
ON	OFF	QSPI32
ON	ON	JTAG

FANs

6 FMC FANs controlled by corresponding FMCx_PRSENT signals to enable FANs only for active FMC slots.

RGPIO

RGPIO Master is a 32Bit Remote GPIO Interface to talk with FPGA over 3 lanes.

RGPIO Pin to FPGA	Value
0-3	current Boot Mode
4	SC_SW1
5	SC_SW2
6-7	unused
8-13	FMCA...F_PRSENT
14-19	unused
20	PG_PSGT
21	PG_GT_L
22	PG_GT_R
23	unused
24-27	reserved
28-31	interface detection

RGPIO Pin from FPGA	Value
0-23	unused
24-27	reserved
28-31	interface detection

RGPIO slave is routed directly to Slave CPLD.

Appx. A: Change History

Revision Changes

CPLD REV04 to REV05

- more Boot Modes selectable
- Power startup sequence

Document Change History

To get content of older revision got to "Change History" of this page and select older document revision number.

Date	Document Revision	CPLD Firmware Revision	Supported PCB Revision	Authors	Description
	Error rendering macro 'page-info' Ambiguous method overloading for method jdk. proxy279.\$Proxy4022#hasContentLevel Permission. Cannot resolve which method to invoke for [null, class java.lang.String, class com.atlassian.confluence.pages.Page] due to overlapping prototypes between: [interface com.atlassian.confluence.user.ConfluenceUser, class java.lang.String, class com.atlassian.confluence.core.ContentEntityObject] [interface com.atlassian.user.User, class java.lang.String, class com.atlassian.confluence.core.ContentEntityObject]  Unknown macro: 'metadata'	REV02	REV01	Error rendering macro 'page-info' Ambiguous method overloading for method proxy279.\$Proxy4022#hasContentLevel Permission. Cannot resolve which method to invoke for [null, class java.lang.String, class com.atlassian.confluence.core.ContentEntityObject] [interface com.atlassian.user.User, class java.lang.String, class com.atlassian.confluence.core.ContentEntityObject]	document style update

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2017-05-24	v.26	REV02	REV01	John Hartfiel	Revision 02 finished
2016-10-16	v.22	REV01	REV01	Oleksandr Kiyenko	Revision 01 finished
2016-04-11	v.1	---			Initial release

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Appx. B: Legal Notices

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REACH, RoHS and WEEE

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