uFMC25 Status

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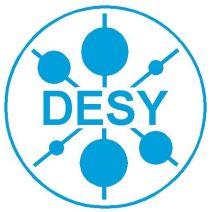


Agenda

uFMC25 main features

Main devices:

- Data processing FPGA: Virtex-5
- Board managment FPGA: Spartan-6
- MMC device : ATxmega128

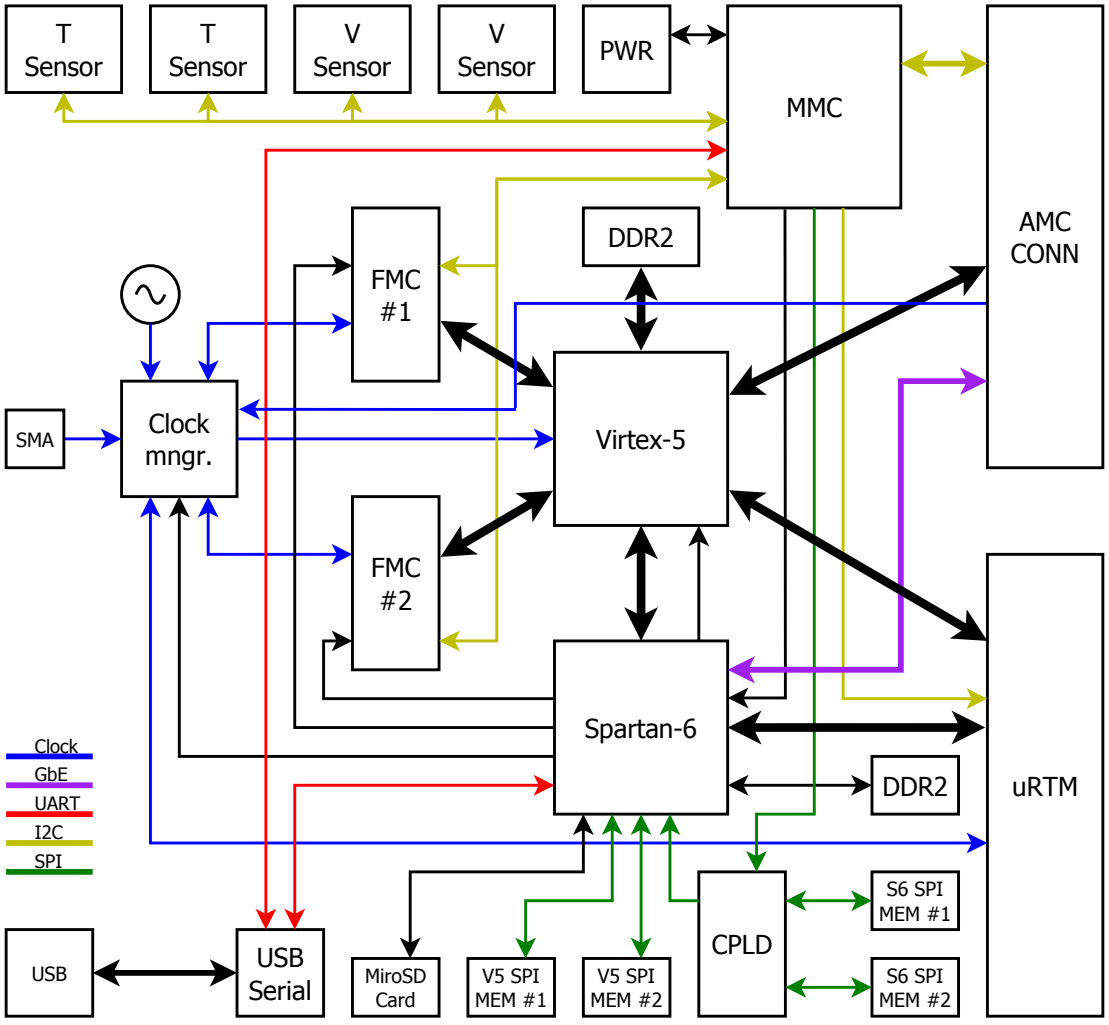
Connectivity:

- 2x FMC (both HPC)
- RTM D1.1 D1.2 D1.3 compatible
- Clocks, triggers and interlocks according to MTCA.4 specification

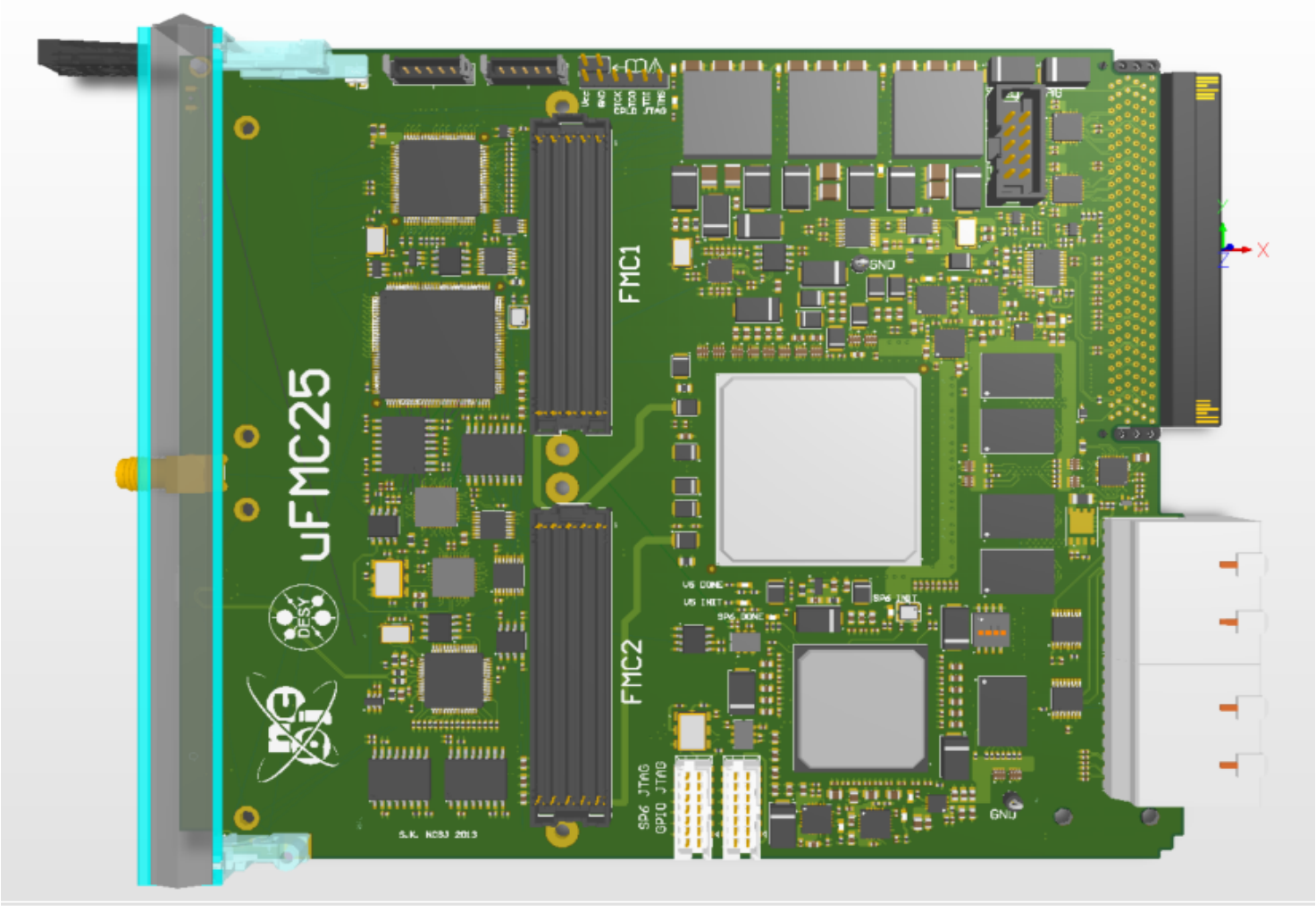
Debugging:

- USB-Serial interface to MMC and to Spartan-6
- Easy external powering for out-of-crate operation

uFMC25 main block diagram



uFMC25 top



Status

Status:

- Schematics: 99% finished (MMC will be ready during the workshop)
- PCB: 99% finished (MMC will be ready during the workshop)

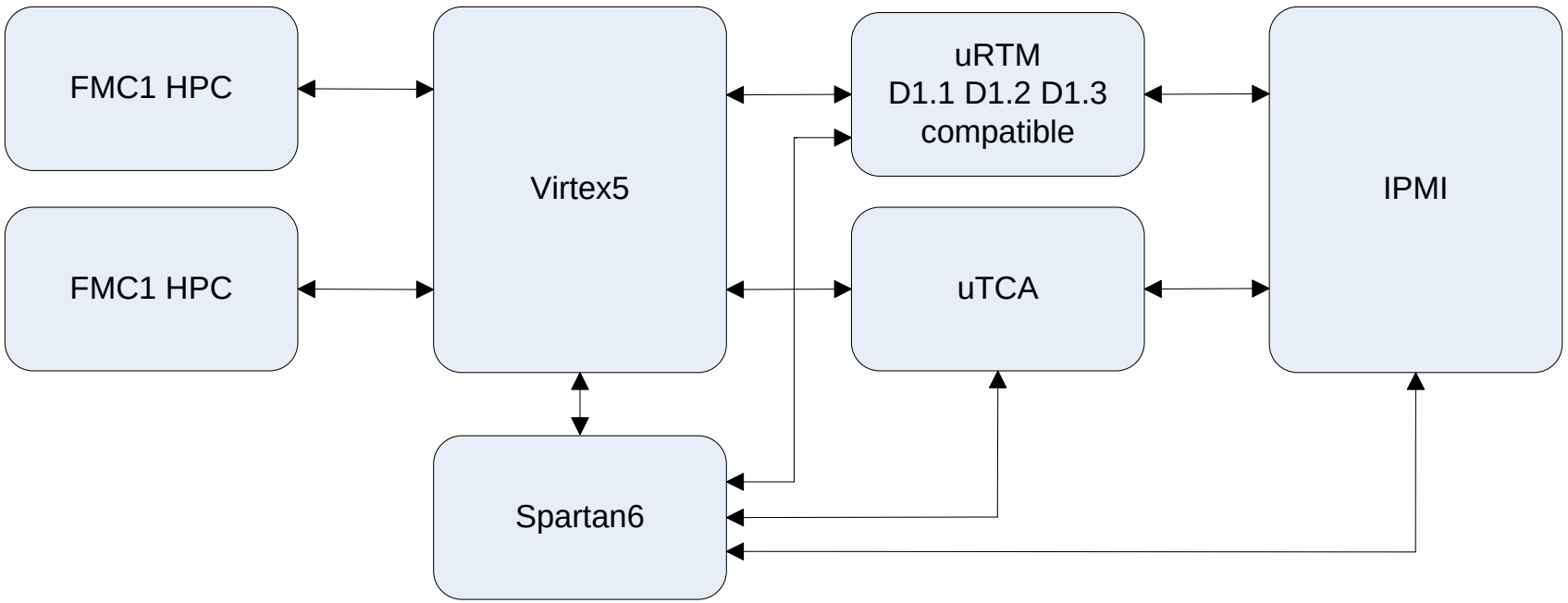
Next steps

- MMC will be ready during the workshop - up to 1 week from now to update schematics and PCB
- Reviewing - T.Jeżyński, J.Szewiński - 2 weeks from now
- BOM and ordering components - custom components, usually available at Farnell, Digi-Key, Avnet
- Production and assembly (8 pcs.) at ILFA - standard 14 layers technology; no blind vias, no buried vias
- VHDL initial projects imported from current testing board during production process - new member will be involved
- Board testing (2 persons)
- Implement core functionality: IPMI, Ethernet, remote configuration (3 persons)
- BAM FMC card test - collaboration with Samer Bou Habib
- working board delivery time - June 2013

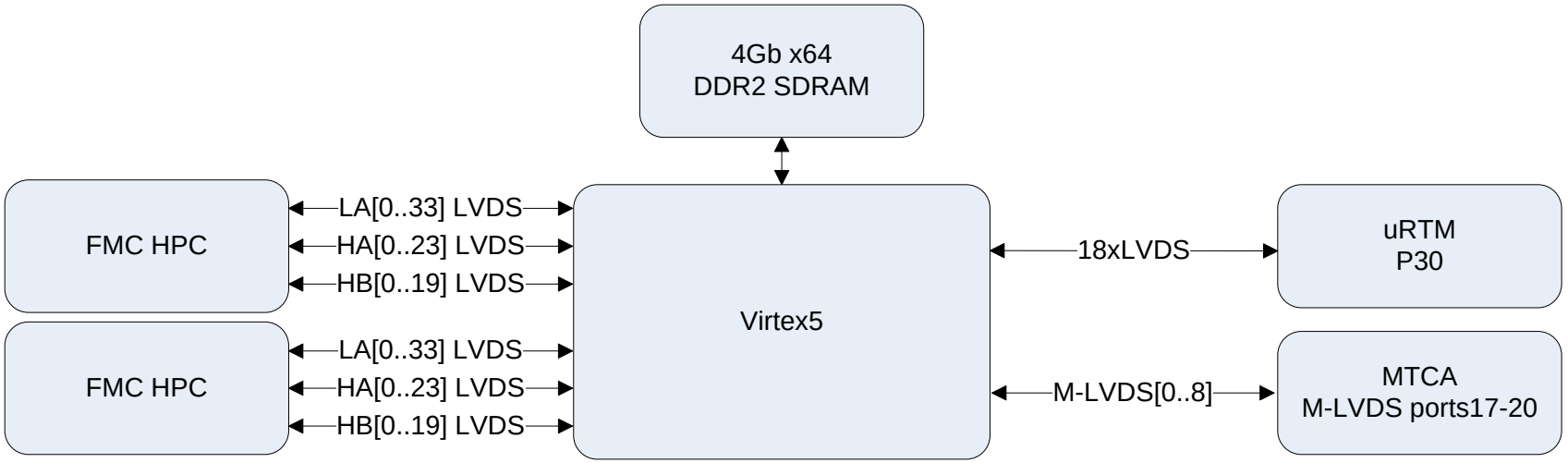
The end

Thank You

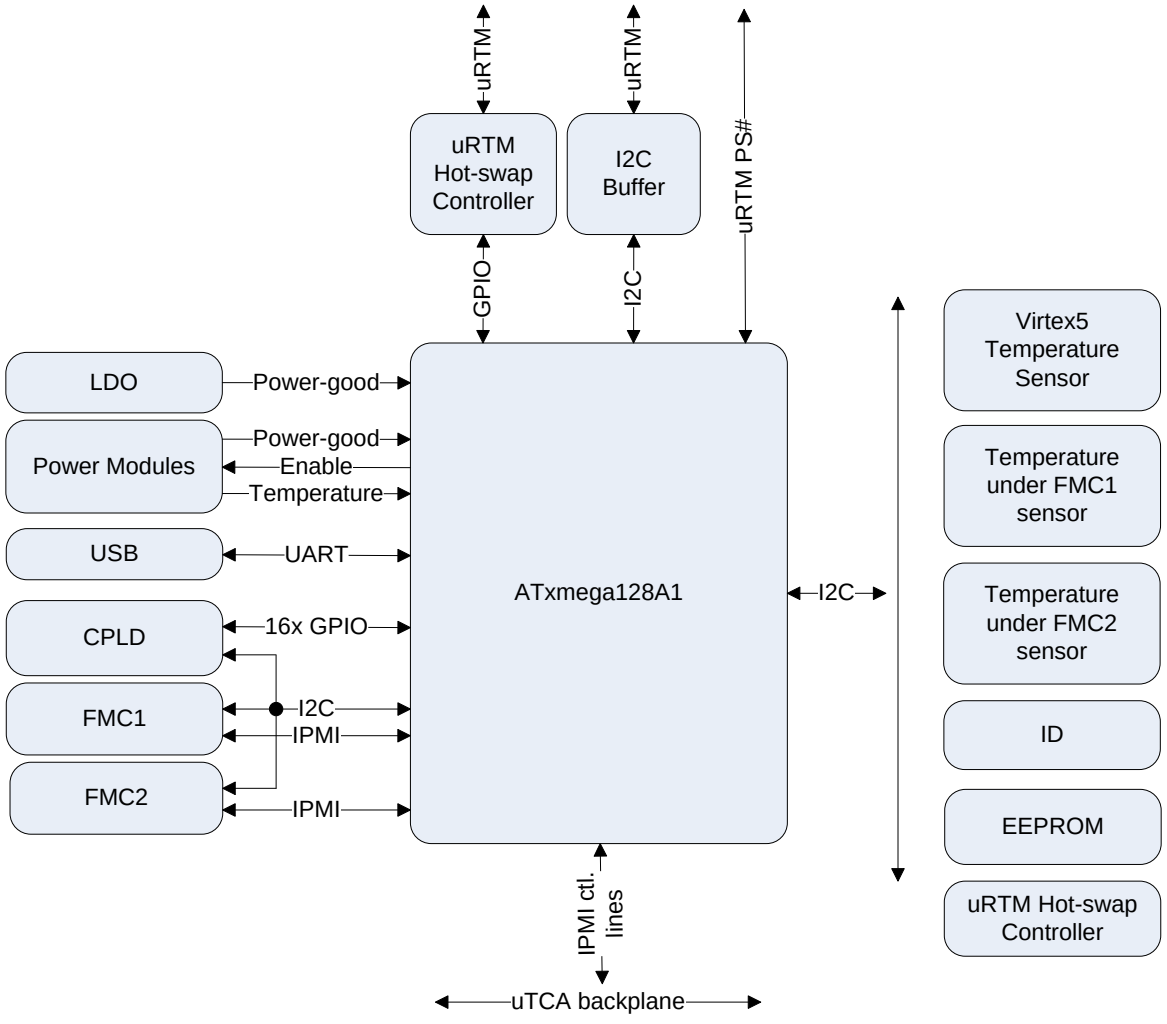
uFMC25 main block diagram



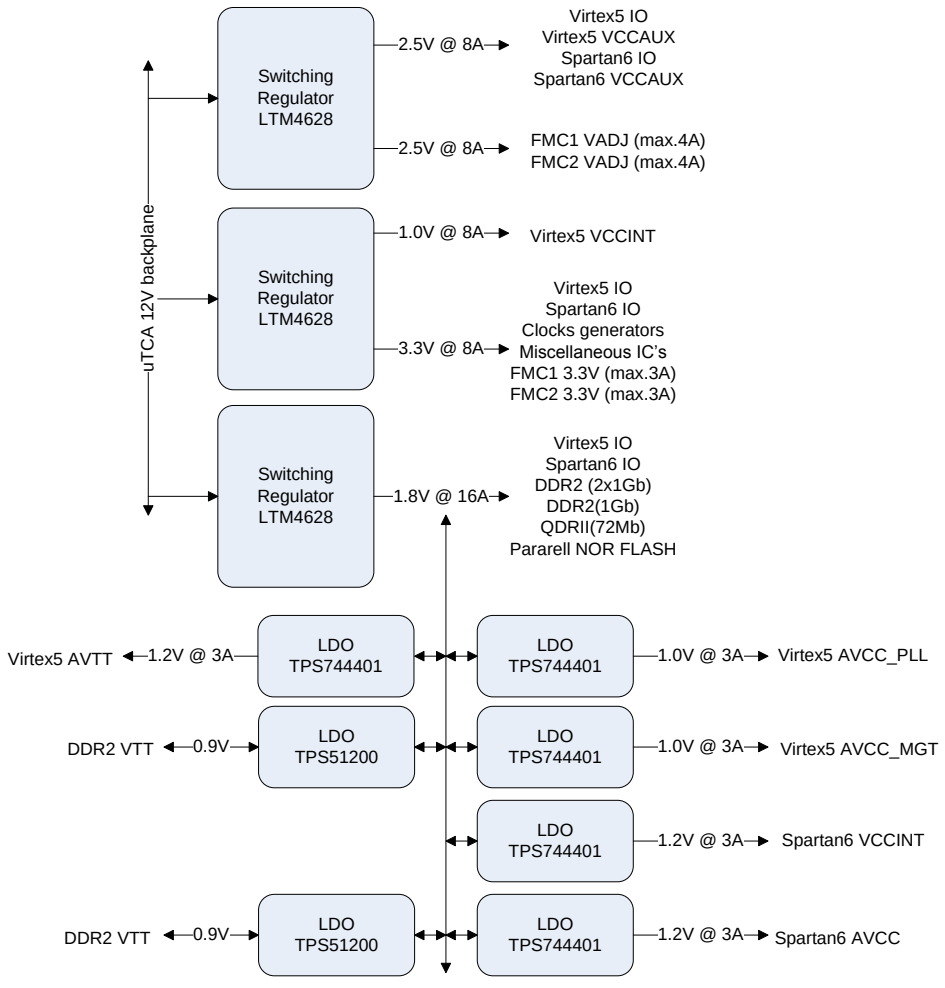
Virtex5 Connectivity



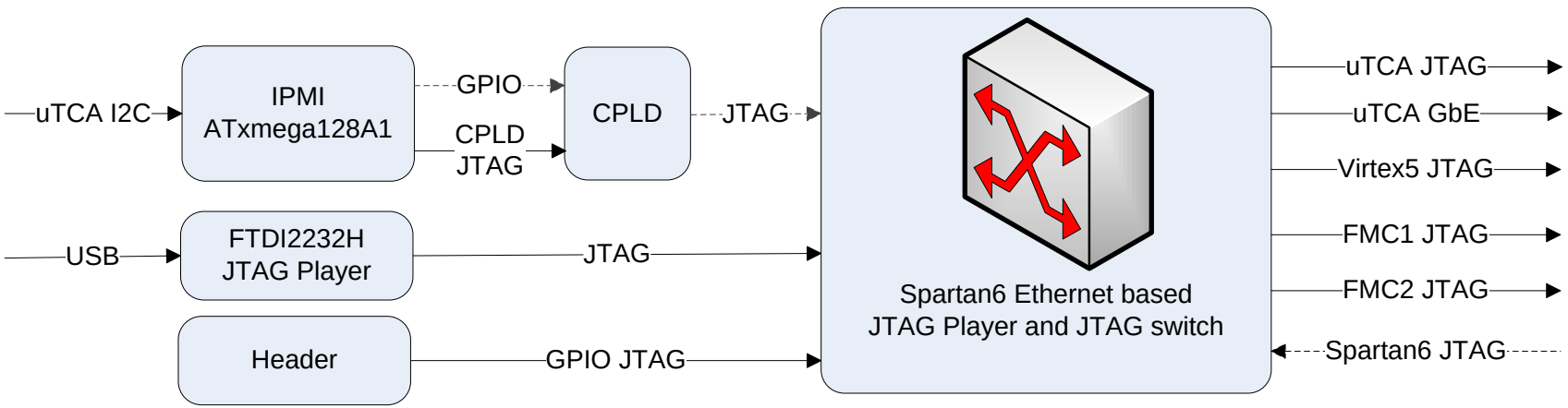
IPMI


uRTM
uRTM
uRTM PS#
uRTM Hot-swap Controller
I2C Buffer
GPIO
I2C
LDO
Power-good
Power Modules
Power-good
Enable
Temperature
USB
UART
CPLD
16x GPIO
FMC1
I2C
IPMI
FMC2
IPMI
ATxmega128A1
I2C
Virtex5 Temperature Sensor
Temperature under FMC1 sensor
Temperature under FMC2 sensor
ID
EEPROM
uRTM Hot-swap Controller
IPMI ctl. lines
uTCA backplane

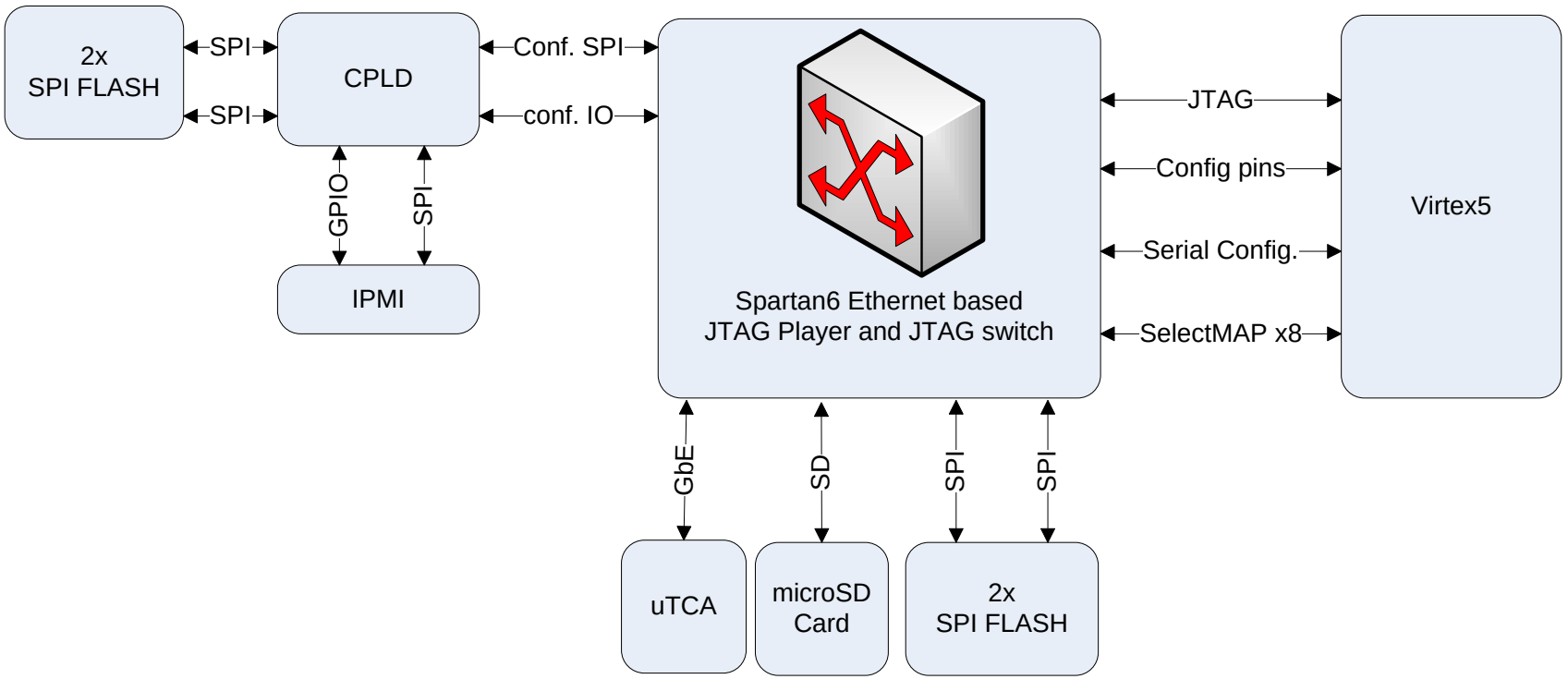
Power distribution



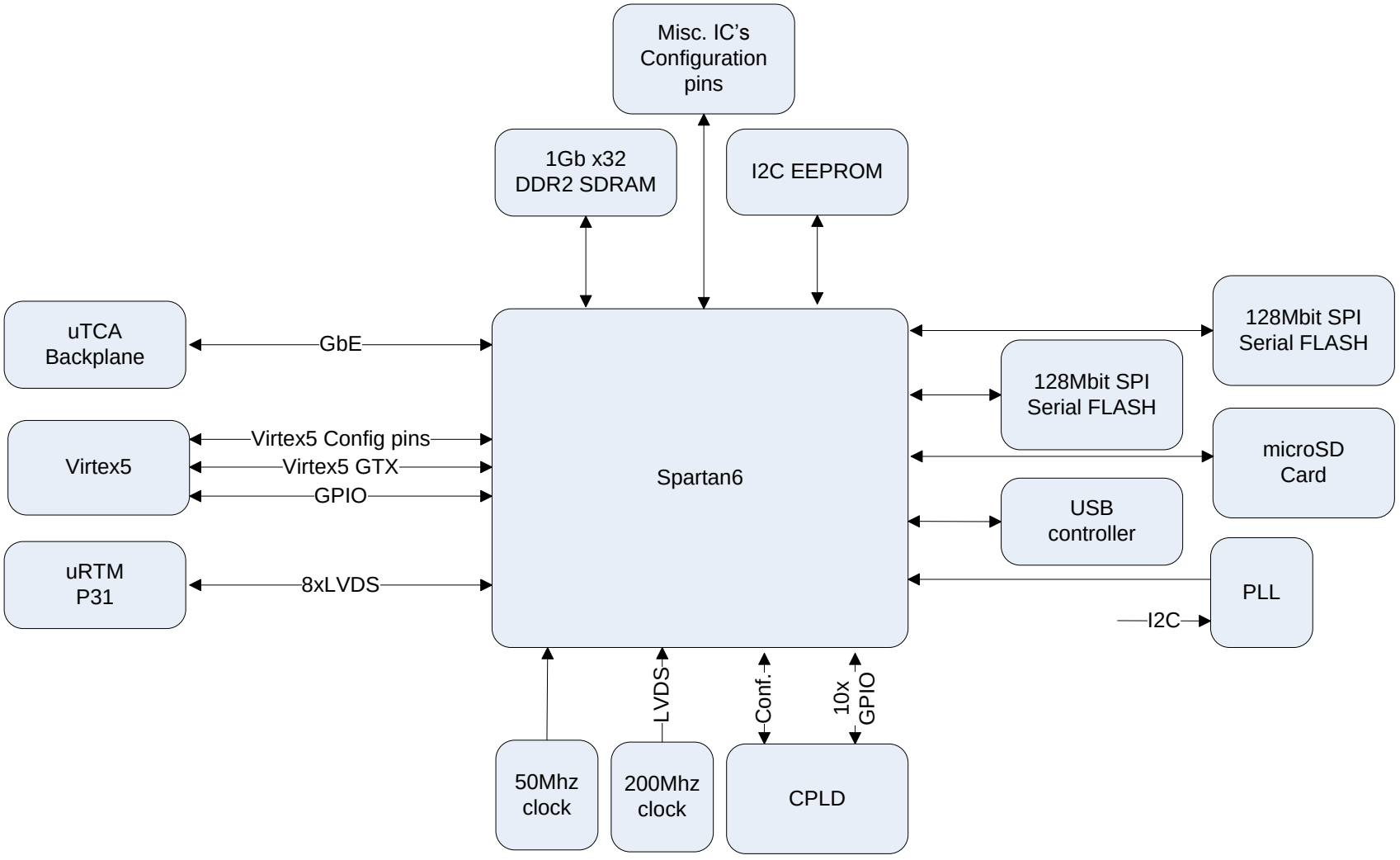
JTAG


uTCA I2C
IPMI
ATxmega128A1
GPIO
CPLD
JTAG
CPLD
JTAG
USB
FTDI2232H
JTAG Player
JTAG
Header
GPIO JTAG
Spartan6 Ethernet based
JTAG Player and JTAG switch
uTCA JTAG
uTCA GbE
Virtex5 JTAG
FMC1 JTAG
FMC2 JTAG
Spartan6 JTAG

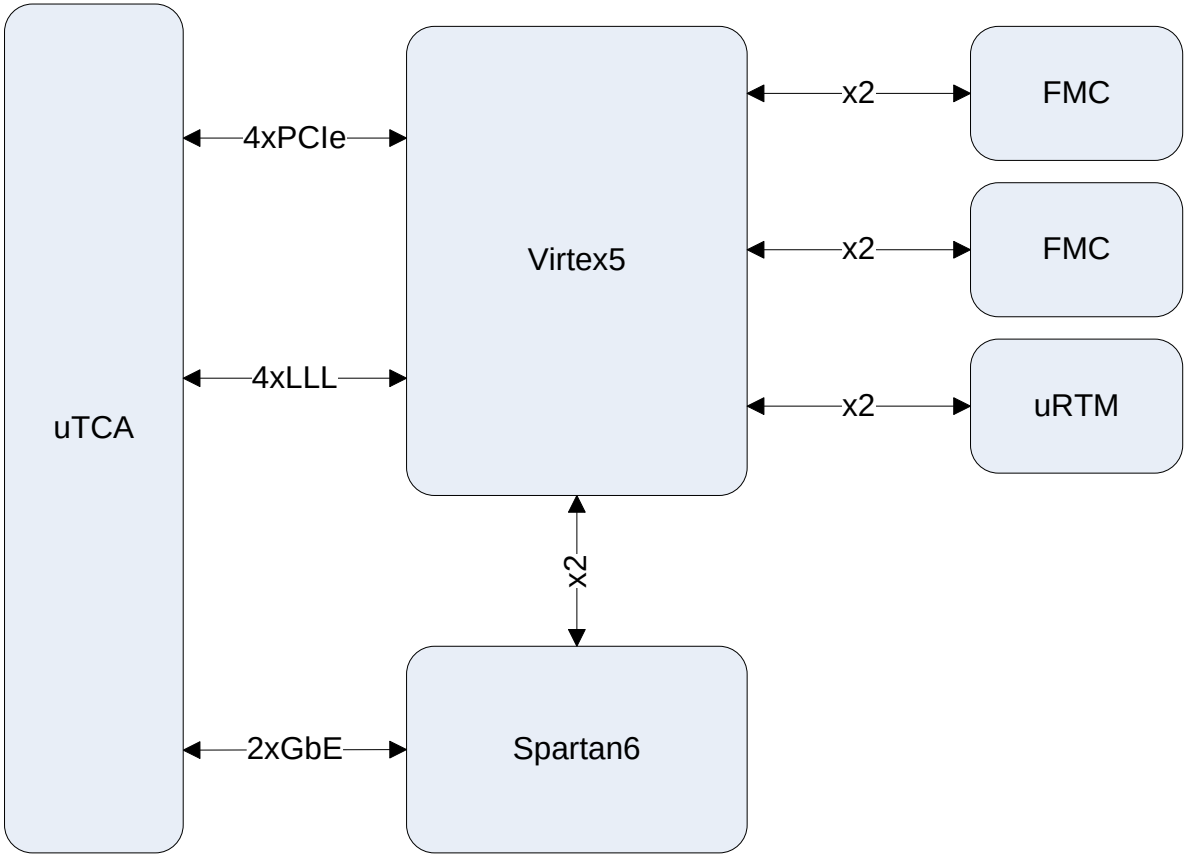
FPGA Configuration



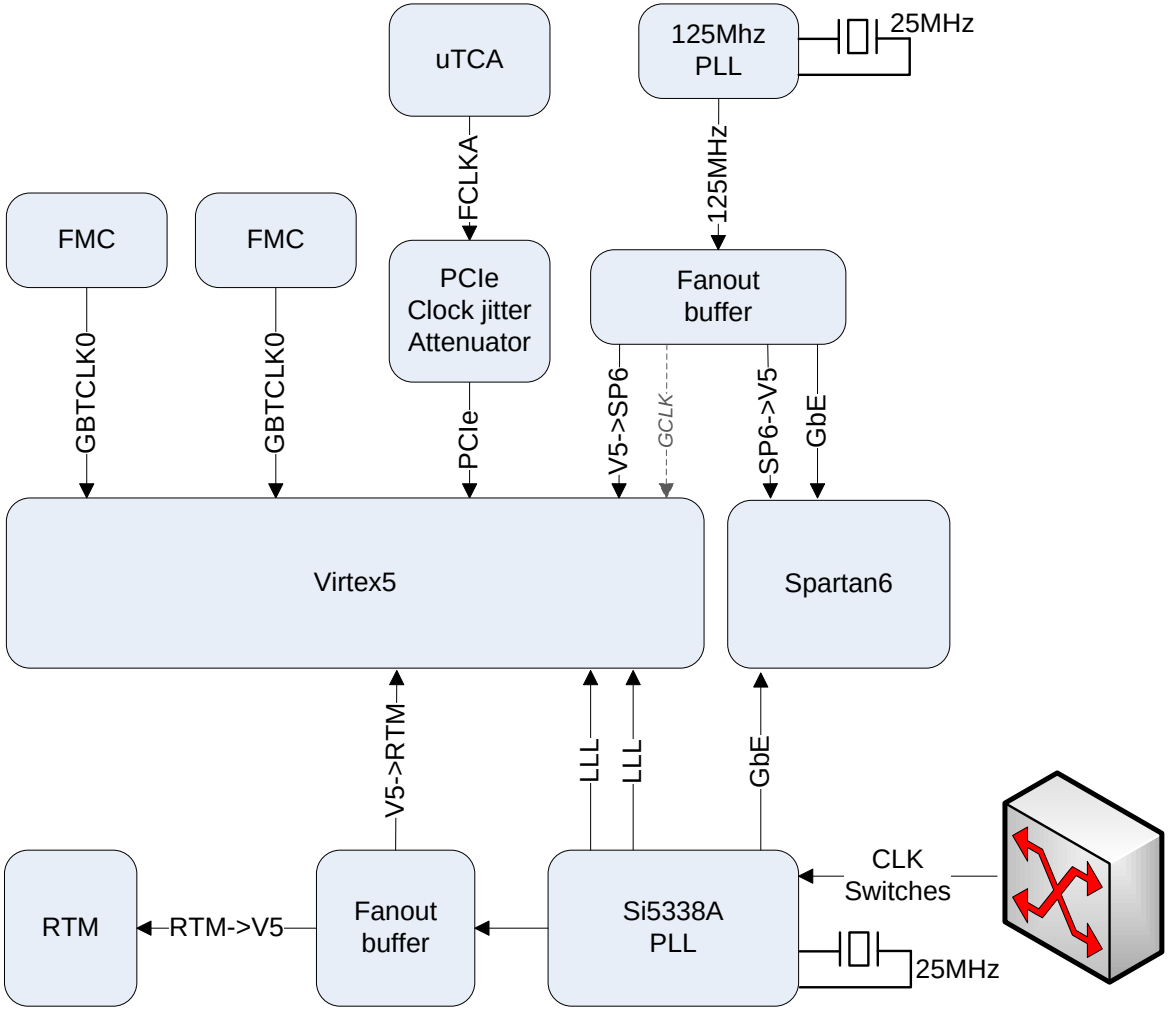
Spartan6


Misc. IC's Configuration pins
1Gb x32 DDR2 SDRAM
I2C EEPROM
uTCA Backplane
GbE
Virtex5
Virtex5 Config pins
Virtex5 GTX
GPIO
uRTM P31
8xLVDS
Spartan6
128Mbit SPI Serial FLASH
128Mbit SPI Serial FLASH
microSD Card
USB controller
PLL
I2C
50Mhz clock
200Mhz clock
LVDS
CPLD
Conf.
10x GPIO

RocketIO


uTCA
4xPCIe
4xLLL
2xGbE
Virtex5
Spartan6
x2
x2
x2
x2
FMC
FMC
uRTM

RocketIO clocks



Clocks Distribution Network