Toward uLOG operation (uLOG, uRFB and MCH-RTM).

Uroš Mavrič on behalf of all the people involved
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Talk Overview.

- The main question of the talk:
  
  "What is needed for the first working prototype?"

- Basic HW building blocks:
  - uRF Backplane (Tomasz L.)
  - RTM-MCH-MB (Annika R.)
  - DRTM-LOG1300 (Uroš M.)
  - Trigger RTM (Christoph S.)

- Required actions for operation

- To-be-defined items

- Possible operational scenarios
uRF Backplane.

- **3 x eRTM (3 x 6HP)**
- **12 x uRTM (12 x 4HP)**
- **MCH-RTM-BM RTM-PM RTM-PM (6HP)**

**DRTM-LOG1300**

- 3 LVDS Lines for comm. with DRTM-LOG1300
- RESET from X2 Timer RTM
- MP and PP interconnections
- RF and CLK signal distribution
- Management signals (PS, PWR_ON etc.)

**X2 Timer RTM**

**MCH-RTM-BM**

- (Test to be performed by next week)

**3.1**

- 3.1

**Space holders:** no components on the RF Backplane in dashed areas!
RTM-MCH-MB

- Power Converters
- Microcontroller TBD
- FET Switch
- IPMB-L
- IPMB
- SCL_L [#13], SDA_L [#13]
- SCL_L [#14], SDA_L [#14]
- SCL_L [#15], SDA_L [#15]

- Microcontroller
- Ethernet
- LVDS 13 (LVDSa, LVDSb, LVDSc)

- LVDS 15 (LVDSa, LVDSb, LVDSc)

- FPGA
- Zynq XC7Z015

- Packaging CLG485

- 1GB DDR3 Memory

- ARM CPU
- Zyqng X72015

- 33MHz Clock

- 80W

- ComExpress Module Type 6

- ComExpress Peripherals
  - (FPGA, GBE Controller, MicroSD, EEPROM, Serial Flash)

- Option to use only one I2C line for all IPMB busses, for use with old MCHs

- uLOG IPMB-L
- uLOG +12V
- uLOG EN
- uLOG PS
- uLOG +3.3V
- uLOG Serial Comm.
DRTM-LOG1300 (uLOG).

The DRTM-LOG1300 generates and splits the LO and CLK signals needed for the digitalization.
X2 timer reset principle has been successfully tested.

- HW is available and tests are planned by the end of next week with uRF backplane ver 3.1 and uLOG ver A.
- uLOG RESET must be at least 5 ns long.
Required actions for “full concept” operation.

- Assuming the HW is delivered and it has been successfully tested according to the specific test plan,….

- …we also need:
  - FW for RTM-MCH-MB (for board-management control and appl. Zynq processor)
  - FW for DRTM-LOG1300 (for MMC and application processor)
  - FW change on the front MCH? Do we also need HW changes?
  - Various FRU records (RF backplane, DRTM-LOG1300, MCH-RTM-BM, DWC, VM)

- Server for:
  - Controlling DRTM-LOG1300 (logging data)
  - RESET signal in X2 timer server
Protocol for shipping data from DRTM-LOG1300 to RTM-MCH-MB

- Which data will be shipped, how often, precision?

High-level server for operating DRTM-LOG1300 is needed. In standard configuration of the MCH-RTM-BM not part of the standard infrastructure.

The “RESET” button will be located on the X2 Timer server panel. Modifications of the X2 timer server are needed. No FW changes are needed.
If the MCH-RTM-MB is not present:

- The DC power is delivered by a standard PM plugged into the RF backplane and operated in autonomous mode (successfully tested).
- The comm. to DRTM-LOG1300 is established via Ethernet or USB connected to the front CPU (successfully tested).