Coordination meeting on the GSI-JINR Roadmap Agreement Execution
Monday 22 Feb 2021, 16:00

Participants:
 GSI: P. Senger, Ch.J.Schmidt, H.R. Schmidt, J.Heuser
JINR: Y.Murin, C.Ceballos, D.Dementiev, E.Tsapulina, A.Sheremetiev
Invited guests:
M.Kapishin (BM@N Spokesperson), V.Golovatyuk (MPD Technical Coordinator)

1. Roadmap Agreement execution official start.

Peter Senger reported that the Roadmap work packages and their funding have been approved by the German BMBF. However, the official letter has not been sent yet, because some administrative/legal issues still have to be formulated.

2. Tentative work package sharing within the BM@N STS project

Yuri Murin presented a table with tasks to be executed by teams of task leaders from JINR and GSI (see annex 1). From the JINR side, most of the task leaders are appointed. Rudi Schmidt and Christian Schmidt agreed to name the GSI task leaders in the near future.

3. Readout electronics for the BM@N STS: a build-up plan

Christian Schmidt reported on status and plans for the subprojects.

1. GBTxEMU-Card production
The GSI design was modified by Dimitry and Misha Shitenkov.
Open questions:
Is the final design available now?
Shall we push and realize the next version
Check on needs for scrubbing → do tests on experiment

2. General Readout Interface GERI for BM@N
Verify that TE0330 is OK with replaced Clock-Oscillator.
Do a full assessment of the size of the DAQ-System needed and start procurement.

3. Timing and Fast Control System
Primarily firmware programming, check on whether all hardware is available in desired numbers.

4. Integration of self-triggered R/O System into BM@N triggered DAQ system

5. Electronics Cooling
BM@N STS, BM@N GEM-Tracker, MPD

6. ASICs and Readout Cards
ASICs Delivery in two batches, 1000 first delivery, 3600 second delivery
Readout Cards: I understand the design is fully available, so we can start production.

4. STS water and gas cooling systems ideas

Rudi Schmidt reported on the status and plans for the STS cooling systems.

1. Liquid cooling

For detailed simulations, information from JINR is required on
a)   FEB and FEB-Box geometry
b)   Cooling plate formfactor (FEB, ROB, POB)
in order to estimate the needed cooling power. Based on this a decision can be made whether NOVEC or water can be used as cooling liquid to reach T_{env}=15 deg C.

2. Gas Cooing

An offer from SAMP (produced of ALICE gas plant) was obtained for the CBM Gas cooling specs. In principle gas cooling both for CBM and BM@N could be ordered one the exact spec also for BM@N are known (dew point < 15 deg C and flow)

3. Climate Chamber

Following the recommendation from reviewers also modules should be cold-cycled (CBM: -40 deg C to +40 deg C; BM@N: - 5 deg C (?) to +40 deg C)

5. Brief report on status of CMIS at JINR.

Cesar Ceballos reported on the Computer Management Information System (CMIS) which has been implemented by specialists from JINR-STS, JINR-LIT and Kybernetika. Meanwhile, the following components are installed at JINR: all hardware, the Oracle DB (also licensed for use/support), and the CMIS test WebApp and API. The system can be accessed safely from outside through SSO to WebApp. For BM@N, a project has started to implement production/test data, mechanical drawings, and technical documentation

6. Discussion of a list of priority items to procure

Peter Senger presented a list of items, which could be procured after official approval of the project. The list has been updated after the meeting and is shown in Annex 2.

Annex 1

	Task	Task leader
1	**Project coordination**	Yu. Murin (JINR), ? (GSI)
2	**Procurements & delivery control**	I.Gorelikov/M. Peres (JINR), ?GSI
3	**Production data base CMIS**	E.Tsapulina (JINR)/ ,(GSI)
4	**Central sensors: design and production**	M. Merkin (SINP MSU) ; ? (GSI)
5	**Module assembly**	A. Sheremetiev (JINR),?(GSI)
5.1	*Module components supply management*	N.Sukhov(JINR)/ (GSI)?
6	**Ladder assembly**	V. Elsha (JINR)
7	**Mechanics (Mainframe)**	M. Merkin (SINP MSU) ; ? (GSI)
8	**Readout electronics**	C.J.Schmidt (GSI), D. Dementev (JINR)
8.1	*Firmware for GBTxEMU and GERI*	W. Zabolotny (WUT)
8.2	*Hardware production*	C.J.Schmidt (GSI)
8.3	*Connectivity*	M. Schitenkow(JINR)
8.4	*TFC and integration into BM@N DAQ*	?(JINR)-?(GSI)
8.5	*ECS*	?(JINR)-?(GSI)
8.6	*Configuration routines*	M.Shitenkow (JINR)-?(GSI)
9	**Analysis**	?(JINR) -?(GSI)
10	**Liquid cooling system**	H. R. Schmidt (FAIR)-?(JINR)
11	**Gas cooling system**	H. R. Schmidt (FAIR)-?(JINR)
12	**LV & HV Power supply system**	?(GSI) - D.Dementyev (JINR)
13	**DCS**	A.Kolozhvari(JINR)
14	**Beam pipe/ target chamber interfaces**	?(JINR)-?(GSI)

Annex 2

	Item	Project No.	Supplier	Cost € (no VAT)	Owner
1	Licenses WinCC OA	1	Siemens	223.234,00	JINR
2	HV LV TPC MPD	1	CAEN	488.826,00	JINR
3	4 x automatic Bondmachines	1	F&S	640.000,00	JINR/GSI
4	Manual bonding machine	1	BONDTEC	46.270,00	GSI
5	Digital microscope	1	Keyence	89.970,00	JINR
6	VMM3a ASIC wafer (for GEMs)	1	DG CIRCUITS	5.244,00	JINR
7	2 x Climate Chamber	1	Binder	49.236,00	JINR/GSI
8	Special Sensors BM@N	1	CIS	200.000,00	JINR
9	10 GERI boards	2	TRENZ	18.000,00	JINR
				1.760.780,00	