



FEX System ATCA Hub Module: Production Schedule

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Schedule?

- ❖ L1Calo schedule guess as of 2017
 - All FEX, L1Topo modules in STF by April 2019
 - This gives a window of at least ~6 months for testing
 - Sounds a bit tight...
- ❖ Module installation in USA15 starting Sept 2019
 - Recommissioning, shakedown during 2020
 - Ready for operations 2021

	A	H	I	J	K	L	M	N		
	<i>Speculation - August 2017</i>									
1		eFex	jFex	gFex	L1Topo	FOX	TREX	Phase 1 L1 Calo	Phase 1 topo	
2										
3	2018									
4	Jan									
5	Feb	STF : eFex prototypes modules	STF : jFex prototype	STF : gFex pre-production	STF : (Run-2) L1Topo	STF : Demo-FOX				
6	Mar						STF : Prototype TREX			
7	Apr									
8	May									
9	Jun		STF : jFex pre-production		STF : Pre-production L1Topo					
10	Jul									
11	Aug									
12	Sep									
13	Oct	STF : eFex pre-production modules		STF : gFex production		STF : Production FOX				
14	Nov									
15	Dec						STF : Pre-production TREX		gFEX PPP in P1	
16	2019									
17	Jan							Cooling and Ventilation		
18	Feb									
19	Mar		STF : jFex Production		STF : L1Topo production modules			gFEX PPP in P1	Hub and ROD For topo	
20	Apr					Install		FOX		
21	May	STF : eFex Production modules						Installation Hub and Rod eFEX		
22	Jun					Cable & verification			Simple Phase 1 topo	
23	Jul						???	eFEX Installation		
24	Aug								L1 Topo Fiber plant	
25	Sep			Install				jFEX Installatin		
26	Oct	Install					Operation			
27	Nov	Re-commission	Install	Re-commission						
28	Dec		Re-commission		Install			L1 Calo Complete	Phase 1 topo Comple	
29	Average									
30	2020									
31	Jan	Cooling and ventaltation								
32	Feb									
33	Mar	Re-commission	Re-commission	Re-commission	Re-commission			L1 Calo Calibration ru		
34	Apr								Topo Commissioning with L1 Calo	
35	May									
36	Jun									
37	Jul									
38	Aug	USA15 : Shakedown	USA15 : Shakedown	USA15 : Shakedown	USA15 : Shakedown	Operation		Joint L1 Calo/ LAR runs	Topo Commissioning with L1 Calo and Muon	
39	Sep									
40	Oct									
41	Nov									
42	Dec									
43	Average									
44	2021									
45	Jan									
46	Feb	Operation	Operation	Operation	Operation	Operation				
47	Mar									
48	Apr	Beam								
49	May									
50	Jun									
51	Jul									
52	Aug									
53	Sep									
54	Oct									
55	Nov									



L1Calo I&C

- ❖ L1Calo FEX and L1Topo system arriving Q2-Q3 2019
 - jFEX and L1Topo arrive Q2, eFEX and ROD in Q3.
 - Planned envelope 6 June - 18 August
 - As modules arrive at CERN, the STF will be populated for integration tests.
 - Hub production goal: do not be the cause of schedule delays. Deliver STF required modules by **June 2019**.

ID	Task Name	Start	Finish	2018				2019				2020							
				Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1			
3	eFEX	Fri 01/02/13	Fri 09/08/19	[Gantt bar spanning from Q1 2018 to Q3 2019]															
50	jFEX	Thu 17/01/13	Fri 07/06/19	[Gantt bar spanning from Q1 2018 to Q2 2019]															
94	Phase-I L1Topo	Mon 09/01/17	Wed 19/06/19	[Gantt bar spanning from Q3 2018 to Q2 2019]															
127	gFEX	Mon 03/03/14	Fri 10/08/18	[Gantt bar spanning from Q1 2018 to Q3 2018]															
172	ROD	Tue 01/01/13	Mon 19/08/19	[Gantt bar spanning from Q1 2018 to Q3 2019]															
247	Hub	Tue 01/10/13	Wed 15/05/19	[Gantt bar spanning from Q4 2018 to Q2 2019]															
278	FTM (Test Module)	Fri 01/02/13	Fri 01/02/19	[Gantt bar spanning from Q1 2018 to Q1 2019]															
310	TREX	Thu 01/01/15	Wed 28/08/19	[Gantt bar spanning from Q1 2018 to Q3 2019]															
339	FOX	Tue 01/10/13	Tue 21/05/19	[Gantt bar spanning from Q4 2018 to Q2 2019]															
355	TopoFOX	Mon 08/01/18	Fri 30/08/19	[Gantt bar spanning from Q3 2018 to Q3 2019]															
367	Testing, Installation & Commissioning	Mon 01/10/18	Fri 18/12/20	[Gantt bar spanning from Q4 2018 to Q1 2020]															
368	Surface integration tests	Mon 01/10/18	Fri 08/11/19	[Gantt bar spanning from Q4 2018 to Q3 2019]															
369	Physical installation	Mon 11/11/19	Fri 06/12/19	[Gantt bar spanning from Q4 2019 to Q1 2020]															
370	Commissioning	Mon 09/12/19	Fri 10/04/20	[Gantt bar spanning from Q1 2020 to Q2 2020]															
371	ATLAS Shakedown	Mon 13/04/20	Fri 18/12/20	[Gantt bar spanning from Q2 2020 to Q4 2020]															
372	LS2	Tue 01/01/19	Fri 08/01/21	[Gantt bar spanning from Q1 2019 to Q1 2021]															



Hub Production Scope

- ❖ The Hub production run will be 20 modules
 - Question about L1Topo shelf: will this be 1 or 2 Hubs?
 - We plan for more spares that strictly required by policy.
 - But the Hub is a single point of failure for each system over a long duration program.
 - Prefer to not rob test rigs to keep L1Calo running.
- ❖ Hub prototype run was highly uniform
 - 100% acceptance for prototype run
 - However, we will prepare for acceptance loss up to 2 modules.

System	# Hubs
eFEX	4
jFEX	2
L1Topo	1-2
STF	2
Test Rig MSU	2
Test Rig RAL	1
Test Rig Cambridge	1
Spares	5
Acceptance	2-1
Total	20



One Possible Schedule

❖ Assumptions

- 4 week PCB fabrication, 4 week assembly durations
 - Roughly consistent with prototype build
- Final assembly + bench test of 1.5 Hubs per week (6 per month)
- Each Hub spends up to 2 weeks in the HTM test stand, time split between slots 1 and 2
 - IE, 2 Hubs qualified every 2 weeks

❖ Hard to say today if this is aggressive or conservative

- On this schedule, the 6 test rig and STF Hub modules can probably be delivered by June 2019
 - Assuming no delays, all Hubs at CERN ready for installation by August 2019

