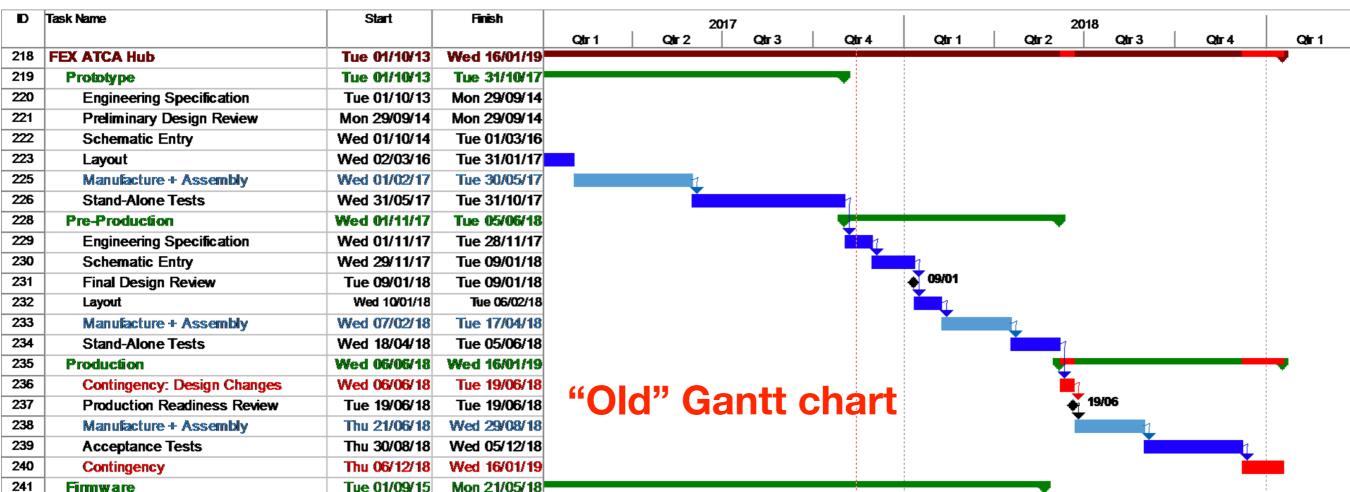


Hub Production Scope

- * Hub module production run will be 19 modules
 - 8 modules for the system
 - 4x eFEX
 - 2x jFEX
 - 2x L1Topo
 - 3 dedicated spare modules
 - +1 relative to nominal L1Calo plan to counter longevity uncertainty
 - 2 modules for MSU test bench
 - 2 modules for CERN test installation
 - 2 modules for UK test benches
 - 2 overall "acceptance" spares



Post FDR Plans & Schedule



- ❖ Post-FDR schedule will change relative to our working schedule
 - FDR is happening 2 months later than hoped in 2017
 - This squeezes us a bit, but it's recoverable
 - No anticipated changes to Hub design or manufacture process
 - Pre-production phase can be phased out.
 - Use this period for extended Hub module testing, as described in testing presentation.
 - Will describe plan for the production step on next page.



Proposed Schedule

D	Task Name	Start	Finish	2017					2018				
				Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qir1	
218	FEX ATCA Hub	Tue 01/10/13	Wed 16/01/19									7	
219	Prototype	Tue 01/10/13	Tue 31/10/17				_						
220	Engineering Specification	Tue 01/10/13	Mon 29/09/14										
221	Preliminary Design Review	Mon 29/09/14	Mon 29/09/14										
222	Schematic Entry	Wed 01/10/14	Tue 01/03/16										
223	Layout	Wed 02/03/16	Tue 31/01/17										
225	Manufacture + Assembly	Wed 01/02/17	Tue 30/05/17		1								
226	Stand-Alone Tests	Wed 31/05/17	Tue 31/10/17		Ĭ		1						
228	Pre-Production	Wed 01/11/17	Tue 05/06/18				4		_				
229	Engineering Specification	Wed 01/11/17	Tue 28/11/17				1						
230	Schematic Entry	Wed 29/11/17	Tue 09/01/18					<u> </u>					
231	Final Design Review	20/03/18	20/03/18										
232		20,00,10	20,00,10					~					
233	Extended Hub Testing	21/03/18	05/06/18										
234									7				
235	Production	Wed 06/06/18	Wed 16/01/19						-				
236	Contingency: Design Changes	Wed 06/06/18	Tue 19/06/18						<u> </u>				
237	Production Readiness Review	Tue 19/06/18	Tue 19/06/18						·	19/06			
238	Manufacture + Assembly	Thu 21/06/18	Wed 29/08/18	"INIC	NA/ ³³	Gantt	cha	*	Ĭ				
239	Acceptance Tests	Thu 30/08/18	Wed 05/12/18	146	, VV	Gantt	Ulla					<u>:</u>	
240	Contingency	Thu 06/12/18	Wed 16/01/19										
241	Firmware	Tue 01/09/15	Mon 21/05/18										

- PRR date stays at early or mid June '18
 - Review details of extended Hub testing
- Propose to split Hub production run into two chronological phases
 - Manufacture 22 production PCBs
 - Assemble 4 production Hubs as a pre-production phase to re-validate manufacturing process.
 - With two benches of HTMs, we can test 4 Hubs in just a few days.
 - If no problems are found, assemble remaining 15 Hub modules.
 - Extend manufacture/testing duration to accommodate full-bandwidth "soak tests" for all Hubs.