

LVL1 Trigger WBS

Plant #	PBS code	Work description	Location	Name of resp	Input from plant #	Output to p	Workload Units	Start Date	End Date
0	10.1	LVL1 trigger system (integration & commissioning)	CERN	N.Ellis	1, 99, 308, 315	n/a			
<b>1</b>	<b>10.1.2.1</b>	<b>Calorimeter Trigger (integration &amp; testing)</b>	<b>CERN</b>	<b>E.Eisenhandle</b>	<b>2, 11, 13, 15, 28</b>	<b>0</b>		<b>Aug-04</b>	<b>May-05</b>
<b>2</b>	<b>10.1.2.1.1</b>	<b>Preprocessor (PPr)</b>	<b>Heidelberg</b>	<b>P.Hanke</b>	<b>3-10, 23, 27</b>	<b>1</b>	<b>1 subsystem</b>	<b>Oct-01</b>	<b>Jul-04</b>
3	10.1.2.1.1.1	Preprocessor Module (PPM)	Heidelberg	P.Hanke	4, 5, 5a	2	140 modules	Sep-02	Aug-03
4	10.1.2.1.1.1.1	PPr ASIC	Heidelberg	P.Hanke	n/a	3	2240 ASICs	Oct-01	Sep-02
5	10.1.2.1.1.1.2	PPr MCM	Heidelberg	P.Hanke	n/a	3	2240 MCMs	Dec-01	Sep-02
<b>5a</b>	10.1.2.1.1.2.3	PPr AnIn daughter-card	Heidelberg	P.Hanke	n/a	3	616 cards	Mar-02	Sep-02
6	10.1.2.1.1.2	PPr Readout Driver Module	Heidelberg	P.Hanke	n/a	2	20 modules	Sep-02	Aug-03
7	10.1.2.1.1.3	PPr crate	Commercial	P.Hanke	n/a	2	8 crates	May-03	Aug-03
8	10.1.2.1.1.4	PPr crate backplane	Heidelberg	P.Hanke	n/a	2	12 backplanes	Feb-03	Aug-03
9	10.1.2.1.1.5	PPr TCM adapter link card	Heidelberg	P.Hanke	n/a	2	12 cards	May-03	Aug-03
10	10.1.2.1.1.6	Preprocessor crate CPU	Heidelberg/Comm	P.Hanke	n/a	2	8 processors	May-03	Aug-03
<b>11</b>	<b>10.1.2.1.2</b>	<b>Cluster Processor (CP)</b>	<b>UK</b>	<b>A.R.Gillman</b>	<b>12, 16-21, 23-27</b>	<b>1</b>	<b>1 subsystem</b>	<b>Jan-03</b>	<b>Dec-04</b>
12	10.1.2.1.2.1	CP Module (CPM)	UK	A.R.Gillman	n/a	11	62 modules	Jan-03	Dec-03
<b>13</b>	<b>10.1.2.1.3</b>	<b>Jet/Energy-sum Processor (JEP)</b>	<b>Mainz/Stockholm</b>	<b>U. Schaefer</b>	<b>14, 16-21, 23-27</b>	<b>1</b>	<b>1 subsystem</b>	<b>Feb-03</b>	<b>Jan-05</b>
14	10.1.2.1.3.1	JEP Module (JEM)	Mainz/Stockholm	U. Schaefer	n/a	13	36 modules	Feb-03	Jan-04
<b>15</b>	<b>10.1.2.1.4</b>	<b>Common modules and items</b>	<b>n/a</b>	<b>A.R.Gillman</b>	<b>n/a</b>	<b>n/a</b>		<b>Aug-02</b>	<b>Jul-04</b>
16	10.1.2.1.4.1	CP/JEP Common Merger Module (CMM)	UK	A.R.Gillman	n/a	11, 13	16 modules	Mar-03	Dec-03
17	10.1.2.1.4.2	CP/JEP crate	Commercial	A.R.Gillman	n/a	11, 13	11 crates	Oct-03	Dec-03
18	10.1.2.1.4.3	CP/JEP crate backplane	Stockholm	S.Silverstein	n/a	11, 13	12 backplanes	Dec-02	Dec-03
19	10.1.2.1.4.4	CP/JEP TCM Adapter Link Card (ALC)	UK	A.R.Gillman	n/a	11, 13	12 cards	Jul-03	Dec-03
20	10.1.2.1.4.5	CP/JEP CPU VME Mount Module (VMM)	UK	A.R.Gillman	n/a	11, 13	12 cards	Apr-03	Sep-03
21	10.1.2.1.4.6	CP/JEP crate CPU	Commercial	M.Landon	n/a	11, 13	11 processors	Sep-03	Dec-03
22	10.1.2.1.4.7	CP/JEP serial link cables	Commercial	A.R.Gillman	n/a	1	2294 cables	Dec-03	Jul-04
23	10.1.2.1.4.8	Timing Control Module (TCM)	UK	A.R.Gillman	n/a	2, 11, 13	24 modules	Aug-02	Aug-03
24	10.1.2.1.4.9	CP/JEP Readout Driver Module	UK	A.R.Gillman	n/a	11, 13	24 modules	Aug-03	Dec-03
25	10.1.2.1.4.10	CP/JEP Readout Driver crate	Commercial	A.R.Gillman	n/a	11, 13	2 crates	Sep-03	Dec-03
26	10.1.2.1.4.11	CP/JEP Readout Driver crate CPU	Commercial	M.Landon	n/a	11, 13	2 processors	Sep-03	Dec-03
27	10.1.2.1.4.12	Readout Driver Busy Module	CERN	A.R.Gillman	n/a	2, 11, 13	3 modules	Sep-03	Dec-03
<b>28</b>	<b>10.1.2.1.5</b>	<b>Joint Items</b>	<b>n/a</b>	<b>A.R.Gillman</b>	<b>29-32</b>	<b>1</b>		<b>Jul-03</b>	<b>Jul-03</b>
29	10.1.2.1.5.1	TileCal trigger cables to receiver stations	Commercial	A.R.Gillman	n/a	28	256 cables	Jan-04	Jul-04
30	10.1.2.1.5.2	TileCal receiver stations	Pittsburgh?	A.R.Gillman	n/a	28	1 subsystem	Jul-03	Jul-04
31	10.1.2.1.5.3	Trigger cables: receiver stations to PPr	Commercial	P.Hanke	n/a	28	528 cables	Apr-04	Jul-04
32	10.1.2.1.5.4	Computing infrastructure	Commercial	M.Landon	n/a	28		Jul-03	Aug-03
<b>99</b>	<b>10.1.2.2</b>	<b>LVL1 Muon Trigger (integration &amp; testing)</b>	<b>CERN</b>	<b>N.Ellis</b>	<b>101, 201, 301</b>	<b>0</b>			
<b>101</b>	<b>10.1.2.2.1</b>	<b>LVL1 Muon Barrel Trigger Processor (integration &amp; testing)</b>	<b>Rome</b>	<b>S.Veneziano</b>	<b>102, 105, 108, 109, 110, 111, 113</b>	<b>99</b>			
<b>102</b>	<b>10.1.2.2.1.1</b>	<b>Low Pt Trigger</b>	<b>Rome</b>	<b>S.Veneziano</b>	<b>103, 104</b>	<b>101</b>	<b>1 subsystem</b>	<b>Mar-03</b>	<b>Dec-04</b>
103	10.1.2.2.1.1.1	Splitter Board	Rome	S.Veneziano	n/a	102	416 boxes		
104	10.1.2.2.1.1.2	Pad Logic Board	Rome	S.Veneziano	112	102	416 boxes		
<b>105</b>	<b>10.1.2.2.1.2</b>	<b>High Pt Trigger</b>	<b>Rome</b>	<b>S.Veneziano</b>	<b>106, 107</b>	<b>101</b>	<b>1 subsystem</b>	<b>Mar-03</b>	<b>Dec-04</b>
106	10.1.2.2.1.2.1	Splitter Board	LNF	G.Felici	n/a	105	416 boxes		
107	10.1.2.2.1.2.2	Pad Logic Board	Rome	S.Veneziano	112	105	416 boxes		
<b>108</b>	<b>10.1.2.2.1.3</b>	<b>Optical links to USA15</b>	<b>Naples</b>	<b>A.Aloisio</b>	<b>n/a</b>	<b>101</b>	<b>416 links</b>	<b>Mar-03</b>	<b>Dec-04</b>

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109	10.1.2.2.1.4	RX board	Naples	A.Aloisio	n/a	101	128 modules	Mar-03	Dec-04
110	10.1.2.2.1.5	Sector Logic	Rome	S.Veneziano	n/a	101	64 modules	Mar-03	Dec-04
111	10.1.2.2.1.6	ROD board	Naples	A.Aloisio	n/a	101	32 modules	Mar-03	Dec-04
112	10.1.2.2.1.7	Coincidence Matrix Chip	Rome	S.Veneziano	n/a	104, 107	3328 ASICs	Mar-03	Mar-04
113	10.1.2.2.1.8	Common Items				101			
					202, 214, 215, 223-226, 224b, 234-237, 235b, 243-245				
201	10.1.2.2.2	LVL1 Muon Endcap Trigger Processor (integration & testing)	KEK	O.Sasaki		99			
202	10.1.2.2.2.1	PS-Pack (Patch-Panel and Slave Board Package)	KEK	O.Sasaki	203-213	201	100 sets	Jan-03	Dec-04
203	10.1.2.2.2.1.1	PS Board for doublet wire	KEK	O.Sasaki	n/a	202	576 boards		
204	10.1.2.2.2.1.2	PS Board for doublet strip	KEK	O.Sasaki	n/a	202	240 boards		
205	10.1.2.2.2.1.3	PS Board for triplet wire	KEK	O.Sasaki	n/a	202	384 boards		
206	10.1.2.2.2.1.4	PS Board for triplet strip	KEK	O.Sasaki	n/a	202	96 boards		
207	10.1.2.2.2.1.5	PS Board for EI/FI	KEK	O.Sasaki	n/a	202	96 boards		
208	10.1.2.2.2.1.6	PS Board for service	TMU	C.Fukunaga	n/a	202	100 boards		
209	10.1.2.2.2.1.7	Patch-Panel ASIC (PP ASIC)	KEK	O.Sasaki	n/a	202	12000 ASICs		
210	10.1.2.2.2.1.8	Slave Board ASIC (SLB ASIC)	KEK	O.Sasaki	n/a	202	3100 ASICs		
211	10.1.2.2.2.1.9	JTAG Routing Control ASIC (JRC ASIC)	Tokyo ICEPP	H.Sakamoto	n/a	202	1500 ASICs		
212	10.1.2.2.2.1.10	TTC receiver and distributor	TMU	C.Fukunaga	n/a	202	100 boards		
213	10.1.2.2.2.1.11	DCS ELMB for PS-Pack	Technion	S.Tarem	n/a	202	1500 boards		
		Link production at TMU	TMU	C.Fukunaga				Jan-03	Dec-04
214	10.1.2.2.2.2	Link from PS-Pack to H-pT/SSW Crate	TMU	C.Fukunaga	n/a	201	3120 links		
223	10.1.2.2.2.4	Link from High Pt Board to Sector Logic	TMU	C.Fukunaga	n/a	201	768 links		
		Optical Link Patch-Panel for Trigger Signals from H-pT to Sector Logic	TMU	C.Fukunaga	n/a	201	18 sets		
224	10.1.2.2.2.5	Front-end link from SSW to ROD	TMU/ Weizmann	C.Fukunaga/ L.	n/a	201	192 links		
235	10.1.2.2.2.9	Front-end Link from Sector Logic to ROD	TMU/ Weizmann	C.Fukunaga/ L.	n/a	201	16 links		
		Link production at Weizmann	Weizmann	L.Levinson				Jan-03	Dec-04
236	10.1.2.2.2.10	Optical Link Patch-Panel for Readout signals	Weizmann	L.Levinson	n/a	201	12 panels		
224b	10.1.2.2.2.5	Front-end link from SSW to ROD	TMU/ Weizmann	C.Fukunaga/ L.	n/a	201	192 links		
235b	10.1.2.2.2.9	Front-end Link from Sector Logic to ROD	TMU/ Weizmann	C.Fukunaga/ L.	n/a	201	16 links		
215	10.1.2.2.2.3	H-pT/SSW Crate	KEK	O.Sasaki	216-222	201	48 crates	Jan-03	Dec-04
216	10.1.2.2.2.3.1	H-pT Board for wire	KEK	O.Sasaki	n/a	215	144 modules		
217	10.1.2.2.2.3.2	H-pT Board for strip	KEK	O.Sasaki	n/a	215	48 modules		
218	10.1.2.2.2.3.3	H-pT ASIC	KEK	O.Sasaki	n/a	215	800 ASICs		
219	10.1.2.2.2.3.4	Star Switch Board	Tokyo ICEPP	H.Sakamoto	n/a	215	552 modules		
220	10.1.2.2.2.3.5	H-pT/SSW Controller (HSC)	KEK	O.Sasaki	n/a	215	48 modules		
221	10.1.2.2.2.3.5.1	Primary Protocol ASIC	KEK	O.Sasaki	n/a	215	100 ASICs		
222	10.1.2.2.2.3.5.2	DCS ELMB for H-pT/SSW	Technion	S.Tarem	n/a	215	48 boards		
226	10.1.2.2.2.7	Sector Logic Crate	Kobe	H.Kurashige	227-233	201	8 crates	Jan-03	Dec-04
227	10.1.2.2.2.7.1	Sector Logic Board for Endcap	Kobe	H.Kurashige	n/a	226	96 modules		
228	10.1.2.2.2.7.2	Sector Logic Board for Forward	Kobe	H.Kurashige	n/a	226	48 modules		
229	10.1.2.2.2.7.3	EI/FI Signal Receiver and Distributor	Kobe	H.Kurashige	n/a	226	16 modules		
230	10.1.2.2.2.7.4	TTC receiver and distributor	TMU	C.Fukunaga	n/a	226	2 modules		
231	10.1.2.2.2.7.5	Link from Sector Logic Board to SSW	TMU	C.Fukunaga	n/a	226	144 links		
232	10.1.2.2.2.7.6	Star Swich for Sector Logic	Tokyo ICEPP	H.Sakamoto	n/a	226	48 modules		
233	10.1.2.2.2.7.7	Crate Controller for Sector Logic Crate	Kobe	H.Kurashige	n/a	226	8 processors		
234	10.1.2.2.2.8	Link from Sector Logic to MUCTPI	Kobe	H.Kurashige	n/a	201	144 links	Jan-03	Dec-04
237	10.1.2.2.2.11	ROD Crate	Weizmann	L.Levinson	238-242	201	16 crates	Jan-03	Dec-04
238	10.1.2.2.2.11.1	ROD Board	Weizmann	L.Levinson	n/a	237	16 RODs		
239	10.1.2.2.2.11.2	Link from ROD to ROB (S-LINK)	Weizmann	L.Levinson	n/a	237	16 links		
240	10.1.2.2.2.11.3	Configuration Control Interface (CCI)	KEK	O.Sasaki	n/a	237	48 modules		
241	10.1.2.2.2.11.4	ROD Crate Processor	Weizmann	L.Levinson	n/a	237	16 processors		

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242	10.1.2.2.2.11.5	TTC receiver and distributor	Weizmann	L.Levinson	n/a	237	16 modules		
		<b>Low Voltage Power Supplies</b>	<b>Weizmann</b>	<b>G.Mikenberg</b>				<b>Jun-03</b>	<b>Jun-04</b>
243	10.1.2.2.2.12	Low Voltage Power Supply for PS-Pack	Weizmann	G.Mikenberg	n/a	201			
244	10.1.2.2.2.13	Low Voltage Power Supply for H-pT/SSW Crate	Weizmann	G.Mikenberg	n/a	201			
245	10.1.2.2.2.14	Common Items			n/a	201			
<b>301</b>	<b>10.1.2.2.3</b>	<b>LVL1 Muon Interface to Central Trigger Processor</b>	<b>CERN</b>	<b>N. Ellis</b>	<b>302-307</b>	<b>99</b>		<b>Sep-03</b>	<b>Mar-04</b>
302	10.1.2.2.3.1	MIOCT module	CERN	N. Ellis	n/a	301	16 modules		
303	10.1.2.2.3.2	MIROD module	CERN	N. Ellis	n/a	301	1 modules		
304	10.1.2.2.3.3	MICTP module	CERN	N. Ellis	n/a	301	1 modules		
305	10.1.2.2.3.4	MIBACK active back-plane	CERN	N. Ellis	n/a	301	1 backplanes		
306	10.1.2.2.3.5	Crate	Commercial	N. Ellis	n/a	301	1 crates		
307	10.1.2.2.3.6	Crate processor	Commercial	N. Ellis	n/a	301	1 processors		
<b>308</b>	<b>10.1.2.3</b>	<b>LVL1 Central Trigger Logic</b>	<b>CERN</b>	<b>N. Ellis</b>	<b>309-314</b>	<b>0</b>		<b>Jul-02</b>	<b>Jun-03</b>
309	10.1.2.3.1	Central Trigger Processor	CERN	N. Ellis	n/a	308	1 processors		
310	10.1.2.3.2	ROD-busy module	CERN	N. Ellis	n/a	308	? modules		
311	10.1.2.3.3	Crate	Commercial	N. Ellis	n/a	308	1 crates		
312	10.1.2.3.4	Crate processor	Commercial	N. Ellis	n/a	308	1 processors		
313	10.1.2.3.5	Patch panel for CTP inputs	CERN	N. Ellis	n/a	308	1 panels		
314	10.1.2.3.6	LVL1 fan-out	CERN	N. Ellis	n/a	308	1 fan-outs		
<b>315</b>	<b>10.1.2.4</b>	<b>Timing, Trigger and Control Distribution</b>	<b>CERN</b>	<b>P. Farhouat</b>	<b>316-324</b>	<b>0</b>		<b>Jun-00</b>	<b>Jun-04</b>
316	10.1.2.4.1	TTCvx	CERN	P. Farhouat	n/a	315	0 modules		
317	10.1.2.4.2	TTCvi	CERN	P. Farhouat	n/a	315	50 modules		
318	10.1.2.4.3	TTCrx	CERN	P. Farhouat	n/a	315	8500 ASICs		
319	10.1.2.4.4	TTCmi	CERN	P. Farhouat	n/a	315	2 modules		
320	10.1.2.4.5	TTCex	CERN	P. Farhouat	n/a	315	? modules		
321	10.1.2.4.6	TTCix	CERN	P. Farhouat	n/a	315	? modules		
322	10.1.2.4.7	TTCmx	CERN	P. Farhouat	n/a	315	? modules		
323	10.1.2.4.8	fibres	Commercial	P. Farhouat	n/a	315	? fibres		
324	10.1.2.4.9	splitters	CERN	P. Farhouat	n/a	315	? splitters		