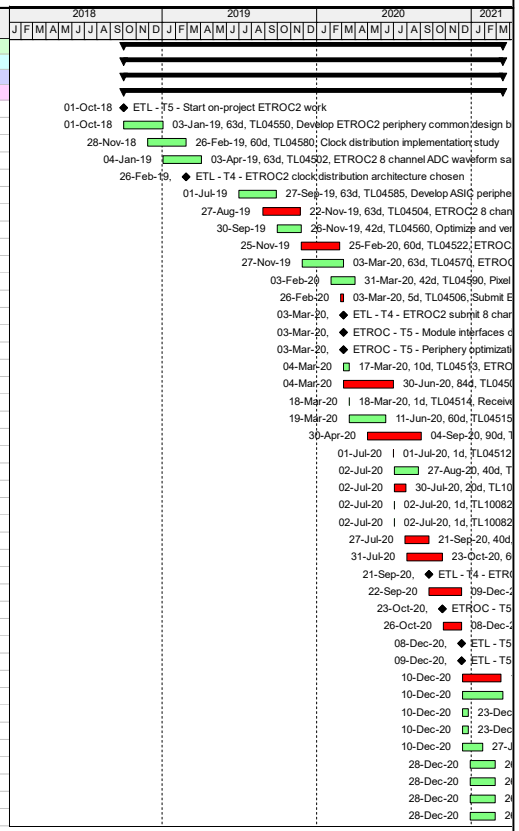
Activity ID	Activity Name	Responsibl Institution	Perform Institutio	Planned Start	Planned Duration	Planned Labor Units	Planned Labor Cost	Planned Nonlabor Units	Planned Nonlabor Cost	Planned Material Cost	Estimate Type	Resource IDs
DOE-CD1-402.8-FC2 402.8 TL - Timing Layer (at DOE CD1) - Copy for FC-11Oct19				01-Oct-18	614d	4082h	$638,278.04	7847h	$210,574.54	$44,348.52		
DOE-CD1-402.8-FC2.4 ETL - Endcap Timing Layer				01-Oct-18	614d	4082h	$638,278.04	7847h	$210,574.54	$44,348.52		
DOE-CD1-402.8-FC2.4.2 ETL - Frontend ASICs				01-Oct-18	614d	4082h	$638,278.04	7847h	$210,574.54	$44,348.52		
DOE-CD1-402.8-FC2.4.2.3 ETL - Frontend ASICs v2 development				01-Oct-18	614d	4082h	$638,278.04	7847h	$210,574.54	$44,348.52		
TL04499	ETL - T5 - Start on-project ETROC2 work			01-Oct-18	0d	0h	$0.00	0h	$0.00	$0.00		
TL04550	Develop ETROC2 periphery common design blocks - FNAL	FN	FN	01-Oct-18	63d	864h	$132,678.95	0h	$0.00	$0.00	L1	FNd_ASIC_DESIGN_EN
TL04580	Clock distribution implementation study	FN	FN	28-Nov-18	60d	144h	$22,113.16	0h	$0.00	$0.00	L1	FNd_ASIC_DESIGN_EN
TL04502	ETROC2 8 channel ADC waveform sampling design	SM	SM	04-Jan-19	63d	0h	$0.00	887h	$25,725.66	$0.00	L1	CMS-HL_FN_SM_P_ENG_GRAD_STUD
TL04582	ETL - T4 - ETROC2 clock distribution architecture chosen				0d	0h	$0.00	0h	$0.00	$0.00		
TL04585	Develop ASIC periphery common design blocks - SMU	SM	SM	01-Jul-19	63d	0h	$0.00	887h	$24,602.45	$0.00	L4	CMS-HL_FN_SM_P_PHYS_GRAD_STUD
TL04504	ETROC2 8 channel ADC waveform sampling improvements	SM	SM	27-Aug-19	63d	0h	$0.00	282h	$8,341.11	$0.00	L1	CMS-HL_FN_SM_P_ENG_GRAD_STUD
TL04560	Optimize and verify ASIC periphery common design blocks	FN	FN	30-Sep-19	42d	576h	$91,573.04	0h	$0.00	$0.00	L4	FNd_ASIC_DESIGN_EN, FNd_ASIC_DESIGN_E
TL04522	ETROC2 8 channel ADC waveform sampling initial rad-hard version design	SM	SM	25-Nov-19	60d	0h	$0.00	845h	$25,292.96	$0.00	L4	CMS-HL_FN_SM_P_ENG_GRAD_STUD
TL04570	ETROC2 Periphery integration	FN	FN	27-Nov-19	63d	216h	$34,368.43	0h	$0.00	$0.00	L4	FNd_ASIC_DESIGN_EN
TL04590	Pixel level readout	SM	SM	03-Feb-20	42d	0h	$0.00	282h	$8,072.81	$0.00	L4	CMS-HL_FN_SM_P_PHYS_GRAD_STUD
TL04506	Submit ETROC2 8 channel ADC waveform sampling mini-ASIC	SM	SM	26-Feb-20	5d	0h	$0.00	70h	$2,095.28	$0.00	L1	CMS-HL_FN_SM_P_ENG_GRAD_STUD
TL1000719	ETL - T4 - ETROC2 submit 8 channel ADC waveform sampling mini-ASIC				0d	0h	$0.00	0h	$0.00	$0.00		
TL04572	ETROC - T5 - Module interfaces designed				0d	0h	$0.00	0h	$0.00	$0.00		
TL04850	ETROC - T5 - Periphery optimization done				0d	0h	$0.00	0h	$0.00	$0.00		
TL04513	ETROC2 8 channel ADC waveform sampling testing specification	SM	SM	04-Mar-20	10d	0h	$0.00	70h	$2,095.28	$0.00	L1	CMS-HL_FN_SM_P_ENG_GRAD_STUD
TL04508	SVT - Vendor fabricates 8 channel ADC waveform mini-ASIC	SM	SM	04-Mar-20	84d	0h	$0.00	0h	$0.00	$0.00		
TL04514	Receive 8 channel ADC waveform sampling mini-ASIC testing hardware	FN	FN	18-Mar-20	1d	0h	$0.00	0h	$0.00	$6,639.00	M1	FN_MS_STND_FY19
TL04515	ETROC2 8 channel ADC waveform sampling testing plateform development	SM	SM	19-Mar-20	60d	0h	$0.00	845h	$25,292.96	$0.00	L4	CMS-HL_FN_SM_P_ENG_GRAD_STUD
TL04600	Improve pixel block - preamp, discriminator, TDC	FN	FN	30-Apr-20	90d	1080h	$171,842.15	0h	$0.00	$0.00	L4	FNd_ASIC_DESIGN_EN
TL04512	Receive ETROC2 8 channel ADC waveform sampling mini-ASCI	FN	FN	01-Jul-20	1d	0h	$0.00	0h	$0.00	$23,900.40	M3	FN_MS_STND_FY19
TL04518	ETROC2 8 channel ADC waveform sampling mini-ASIC testing	SM	SM	02-Jul-20	40d	0h	$0.00	564h	$16,881.93	$0.00	L4	CMS-HL_FN_SM_P_ENG_GRAD_STUD
TL1003830	ETROC2 8 channel ADC waveform sampling mini-ASIC irradiation	SM	SM	02-Jul-20	20d	0h	$0.00	564h	$16,881.93	$0.00	L4	CMS-HL_FN_SM_P_ENG_GRAD_STUD
TL1008235	ETROC2 8 channel ADC waveform sampling mini-ASIC irradiation (M&S)	FN	FN	02-Jul-20	1d	0h	$0.00	0h	$0.00	$6,639.00	M1	FN_MS_STND_FY19
TL1008245	ETROC2 8 channel ADC waveform sampling mini-ASIC irradiation travel costs (M&S) (F	FN	FN	02-Jul-20	1d	0h	$0.00	0h	$0.00	$7,170.12	M1	FN_MS_STND_FY19
TL04610	Finalize pixel level preamp, discriminator, TDC, readout	FN	FN	27-Jul-20	40d	432h	$68,736.86	0h	$0.00	$0.00	L4	FNd_ASIC_DESIGN_EN
TL04524	Design modifications to rad-hard version of ADC waveform sampling	SM	SM	31-Jul-20	60d	0h	$0.00	845h	$25,536.62	$0.00	L4	CMS-HL_FN_SM_P_ENG_GRAD_STUD
TL04615	ETL - T4 - ETROC2 pixel level design complete				0d	0h	$0.00	0h	$0.00	$0.00		
TL04620	ETROC2 final integration with periphery and verification (FSC)	FN	FN	22-Sep-20	55d	432h	$72,998.18	0h	$0.00	$0.00	L4	FNd_ASIC_DESIGN_EN
TL04526	ETROC - T5 - 8 channel rad-hard ADC waveform sampling design done				0d	0h	$0.00	0h	$0.00	$0.00		
TL04528	Integration of 8 channel rad-hard ADC waveform sampling	SM	SM	26-Oct-20	30d	0h	$0.00	140h	$4,333.03	$0.00	L4	CMS-HL_FN_SM_P_ENG_GRAD_STUD
TL1003820	ETL - T5 - ETROC2 8 channel rad-hard ADC waveform sampling integration done				0d	0h	$0.00	0h	$0.00	$0.00		
TL04635	ETL - T5 - ETROC2 pixel integration with periphery done				0d	0h	$0.00	0h	$0.00	$0.00		
TL04627	ETROC2 full chip design verification	SM	SM	10-Dec-20	60d	0h	$0.00	282h	$8,727.96	$0.00	L4	CMS-HL_FN_SM_P_ENG_GRAD_STUD
TL04735	Develop test-board for ETROC2	FN	FN	10-Dec-20	63d	240h	$40,899.79	0h	$0.00	$0.00	L4	FNd_ELTN_DESIGN_EN
TL04690	Specify test requirements for ETROC2 - FNAL	FN	FN	10-Dec-20	10d	80h	$0.00	0h	$0.00	$0.00	L4	FN_U_PT_EXP_PHYST
TL04680	Specify test requirements for ETROC2 - USCB	UCSB	UCSB	10-Dec-20	10d	0h	$0.00	80h	$0.00	$0.00	L4	CMS-HL_AVE_U_SCIENTIST
TL04640	Prepare PO for ETROC2 production	FN	FN	10-Dec-20	30d	18h	$3,067.48	0h	$0.00	$0.00	L4	FNd_ASIC_DESIGN_EN
TL04730	Develop testing firmware for ETROC2 - SMU	SM	SM	28-Dec-20	42d	0h	$0.00	282h	$8,347.28	$0.00	L4	CMS-HL_FN_SM_P_PHYS_GRAD_STUD
TL04720	Develop testing software for ETROC2 - SMU	SM	SM	28-Dec-20	42d	0h	$0.00	282h	$8,347.28	$0.00	L4	CMS-HL_FN_SM_P_PHYS_GRAD_STUD
TL04710	Develop testing firmware for ETROC2 - USCB	UCSB	UCSB	28-Dec-20	42d	0h	$0.00	320h	$0.00	$0.00	L4	CMS-HL_AVE_U_SCIENTIST
TL04700	Develop testing software for ETROC2 - USCB	UCSB	UCSB	28-Dec-20	42d	0h	$0.00	320h	$0.00	$0.00	L4	CMS-HL_AVE_U_SCIENTIST



Remaining Level of Effort | Remaining Work
Actual Work | Critical Remainin...

TASK filters: ETL - ETROC - v2, Start Date.

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