

ID	Task Name	Start	Finish	Duration	Predecessors	Material Contingency	Calculated Fixed Cost	Fixed Cost + Contingency	Resource Costs	Resource Costs+Contingency	Cost	Timeline (Sep to Jan)											
1	TPOT	Wed 3/31/21	Thu 12/1/22	437 days		0	\$528,886	\$577,680	\$809,905	\$1,157,023	\$1,338,791	[Timeline bar]											
2	CEA SACLAY KEY TASKS	Wed 3/31/21	Mon 5/16/22	294 days		0	\$337,500	\$337,500	\$0	\$0	\$337,500	[Timeline bar]											
3	Prototypes	Wed 3/31/21	Tue 9/7/21	115 days		0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
10	Production Detectors	Fri 10/1/21	Mon 5/16/22	162 days		0	\$337,500	\$337,500	\$0	\$0	\$337,500	[Timeline bar]											
11	Initiate contract to CEA Saclay	Fri 10/1/21	Fri 10/1/21	0 days		0	\$337,500	\$337,500	\$0	\$0	\$337,500	[Timeline bar]											
12	Contract approved	Tue 11/9/21	Mon 1/3/22	40 days	11	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
13	design	Tue 1/4/22	Fri 2/4/22	24 days		0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
14	design PCB X	Tue 1/4/22	Mon 1/10/22	5 days	12	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
15	design PCB Y	Tue 1/11/22	Mon 1/17/22	5 days	14	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
16	design drift	Tue 1/18/22	Tue 1/18/22	1 day	15	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
17	design resist X	Wed 1/19/22	Wed 1/19/22	1 day	16	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
18	design resist Y	Thu 1/20/22	Thu 1/20/22	1 day	17	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
19	design PCB HV	Fri 1/21/22	Fri 1/21/22	1 day	18	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
20	design mechanics	Mon 1/24/22	Fri 2/4/22	10 days	19	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
21	Procure parts	Tue 1/11/22	Fri 3/18/22	49 days		0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
22	PCB X&Y (preseries)	Tue 1/18/22	Mon 2/14/22	20 days	15	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
23	PCB X&Y (final)	Tue 2/15/22	Mon 3/14/22	20 days	22	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
24	kapton for resist	Fri 1/21/22	Thu 2/10/22	15 days	18	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
25	PCB HV + protection	Mon 1/24/22	Fri 2/4/22	10 days	19	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
26	drift	Wed 1/19/22	Tue 2/15/22	20 days	16	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
27	resist screen	Fri 1/21/22	Thu 3/3/22	30 days	18	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
28	mesh	Tue 1/18/22	Mon 2/28/22	30 days	15	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
29	3D print	Mon 2/7/22	Fri 3/18/22	30 days	20	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
30	MECS	Tue 1/11/22	Mon 2/21/22	30 days	14	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
31	Build Micromegas detectors	Fri 2/11/22	Thu 4/14/22	45 days		0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
32	resist screen print 1	Fri 2/11/22	Thu 2/17/22	5 days	24	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
33	resist screen print 2	Fri 2/18/22	Thu 2/24/22	5 days	32	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
34	resist screen print 3	Fri 2/25/22	Thu 3/3/22	5 days	33	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
35	resist screen print 4	Fri 3/4/22	Thu 3/10/22	5 days	34	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
36	press 1	Fri 2/25/22	Thu 3/10/22	10 days	33,22	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
37	press 2	Tue 3/15/22	Mon 3/28/22	10 days	35,36,2	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
38	bulk 1-6 (preseries)	Fri 3/11/22	Thu 3/17/22	5 days	22,36	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
39	bulk 7-16	Tue 3/29/22	Mon 4/4/22	5 days	38,37,2	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
40	bulk 17-20	Tue 4/5/22	Thu 4/7/22	3 days	39	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
41	assemble 1-6 (preseries)	Fri 3/18/22	Thu 3/24/22	5 days	38,30	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
42	First Micromegas module constructed at Saclay	Thu 3/24/22	Thu 3/24/22	0 days	41	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
43	assemble 7-16	Tue 4/5/22	Mon 4/11/22	5 days	42,39,3	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
44	assemble 17-20	Tue 4/12/22	Thu 4/14/22	3 days	43	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
45	All Micromegas modules constructed at Saclay	Thu 4/14/22	Thu 4/14/22	0 days	44	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
46	Test detectors	Fri 3/25/22	Thu 4/21/22	20 days		0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
47	test 1-6 (preseries)	Fri 3/25/22	Thu 3/31/22	5 days	41	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
48	test 7-16	Tue 4/12/22	Mon 4/18/22	5 days	47,43	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
49	test 17-20	Tue 4/19/22	Thu 4/21/22	3 days	48	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
50	Completion of Saclay in-house tests of all 10 Micromegas modules	Thu 4/21/22	Thu 4/21/22	0 days	49	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
51	Ship to BNL	Tue 4/19/22	Thu 5/5/22	13 days		0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
52	detector xy 1-8	Tue 4/19/22	Mon 5/2/22	10 days	48	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
53	detector xy 9-10	Fri 4/22/22	Thu 5/5/22	10 days	49	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
54	All 10 Micromegas modules shipped to BNL	Fri 4/22/22	Fri 4/22/22	0 days	53SS	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
55	Test production detectors	Tue 5/3/22	Mon 5/16/22	10 days		0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
56	detector xy 1-8	Tue 5/3/22	Mon 5/16/22	10 days	52	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
57	All detectors built, tested, sent to BNL, tested at BNL	Mon 5/16/22	Mon 5/16/22	0 days	56	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
58	TPOT Project	Fri 10/1/21	Thu 12/1/22	305 days		0	\$191,386	\$240,180	\$763,825	\$1,097,119	\$955,211	[Timeline bar]											
59	TPOT Project Management	Fri 10/1/21	Thu 12/1/22	305 days		0	\$0	\$0	\$156,065	\$202,884	\$156,065	[Timeline bar]											
60	Milestone Start TPOT	Fri 10/1/21	Fri 10/1/21	0 days		0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
61	Project Manager	Fri 10/1/21	Thu 12/1/22	305 days	60	0.3	\$0	\$0	\$81,252	\$105,628	\$81,252	[Timeline bar]											
62	Mechanical Integration Engineer	Fri 10/1/21	Thu 12/1/22	305 days	60	0.3	\$0	\$0	\$37,406	\$48,628	\$37,406	[Timeline bar]											
63	Electronics Integration Engineer(sPHENIX)	Fri 10/1/21	Thu 12/1/22	305 days	60	0.3	\$0	\$0	\$37,406	\$48,628	\$37,406	[Timeline bar]											
64	Travel	Fri 10/1/21	Thu 12/1/22	305 days	60	0.3	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
65	Electronics	Fri 10/1/21	Fri 5/6/22	156 days		0	\$88,286	\$94,080	\$89,504	\$110,877	\$177,790	[Timeline bar]											
66	Fee to Detector Transition	Wed 11/17/21	Fri 5/6/22	123 days	60	0	\$20,882	\$20,882	\$0	\$0	\$20,882	[Timeline bar]											
67	Design	Wed 11/17/21	Tue 12/7/21	3 wks		0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
68	Procure FEE to Detector Transition	Mon 1/10/22	Fri 4/29/22	16 wks	67	0	\$20,882	\$20,882	\$0	\$0	\$20,882	[Timeline bar]											
69	Test	Mon 5/2/22	Fri 5/6/22	1 wk	68	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
70	HV	Fri 10/1/21	Mon 5/2/22	152 days		0	\$38,784	\$39,384	\$5,120	\$6,144	\$43,904	[Timeline bar]											
71	Identify HV PS	Fri 10/1/21	Thu 10/7/21	5 days	60	0.2	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
72	Procure HV PS	Mon 1/10/22	Fri 3/25/22	11 wks	71	0	\$37,284	\$37,284	\$0	\$0	\$37,284	[Timeline bar]											
73	Define HV cables (count, type, length, connectors)	Tue 2/1/22	Mon 2/28/22	1 mon	71	0.2	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
74	Procure HV Cables	Tue 4/5/22	Mon 4/18/22	2 wks	73,137	0.4	\$1,500	\$2,100	\$0	\$0	\$1,500	[Timeline bar]											
75	Test HV PS	Tue 4/19/22	Mon 4/25/22	5 days	72,74	0.2	\$0	\$0	\$5,120	\$6,144	\$5,120	[Timeline bar]											
76	Detector + HV test	Tue 4/26/22	Mon 5/2/22	5 days	75,9	0.2	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
77	LV	Fri 10/1/21	Thu 4/14/22	140 days		0	\$2,400	\$2,880	\$5,120	\$6,144	\$7,520	[Timeline bar]											
78	Identify LV PS	Fri 10/1/21	Thu 10/7/21	5 days	60	0.2	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
79	Define LV cables (count, type, length, connectors)	Tue 2/1/22	Mon 2/28/22	1 mon	78	0	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
80	Procure LV PS and cables	Tue 4/5/22	Thu 4/7/22	3 days	137,60	0.2	\$2,400	\$2,880	\$0	\$0	\$2,400	[Timeline bar]											
81	Test LV PS	Fri 4/8/22	Thu 4/14/22	5 days	80	0.2	\$0	\$0	\$5,120	\$6,144	\$5,120	[Timeline bar]											
82	Fee Boards(SAMPA) 16	Fri 10/1/21	Mon 2/28/22	107 days		0	\$8,620	\$10,534	\$22,528	\$27,034	\$31,148	[Timeline bar]											
83	Fabricate FEE Boards	Fri 10/1/21	Thu 10/28/21	1 mon	60	0.2	\$6,720	\$8,064	\$2,048	\$2,458	\$8,768	[Timeline bar]											
84	Test FEE Boards	Fri 10/29/21	Thu 11/25/21	1 mon	60,83	0.2	\$0	\$0	\$20,480	\$24,576	\$20,480	[Timeline bar]											
85	FEE optical	Tue 2/1/22	Mon 2/28/22	1 mon	60	0.3	\$1,900	\$2,470	\$0	\$0	\$1,900	[Timeline bar]											
86	FEE Cooling Plates	Fri 10/1/21	Tue 2/15/22	98 days		0	\$3,600	\$3,600	\$42,400	\$54,352	\$46,000	[Timeline bar]											
87	Design FEE Cooling Plates	Fri 10/1/21	Thu 10/7/21	1 wk	60	0.3	\$0	\$0	\$13,280	\$17,264	\$13,280	[Timeline bar]											
88	FEA analysis of cooling plates	Wed 1/5/22	Tue 1/18/22	2 wks	87	0.3	\$0	\$0	\$26,560	\$34,528	\$26,560	[Timeline bar]											
89	Procure FEE Cooling plates	Wed 1/5/22	Tue 2/8/22	5 wks	87	0	\$3,600	\$3,600	\$2,560	\$2,560	\$6,160	[Timeline bar]											
90	Test FEE Cooling Plates	Wed 2/9/22	Tue 2/15/22	1 wk	89	0.3	\$0	\$0	\$0	\$0	\$0	[Timeline bar]											
91	DAM(Felix)	Fri 10/1/21	Thu 11/4/21	25 days		0	\$7,000	\$8,400	\$7,168	\$8,602	\$14,168	[Timeline bar]											

Project: TPC Outer Tracker (TPOT)
Date: Mon 1/24/22

Critical	Split	Summary	Rolled Up Critical Split	Inactive Milestone	Duration-only	Start-only	External Milestone
Critical Split	Milestone	Project Summary	External Tasks	Inactive Summary	Manual Summary Rollup	Finish-only	Progress
Task	Slippage	Rolled Up Critical	External Milestone	Manual Task	Manual Summary	External Tasks	Deadline

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