

DO Upgrade Schedule
Silicon Tracker

ID	Task Name	Duration	Start	Finish	Predecessors	Constraint	WBS	Resource Names
530	SILICON TRACKER FABRICATION	393.2 w	2/2/93	11/13/00		As Soon As		
531	SILICON TRACKER R&D	336.4 w	2/2/93	9/21/99		As Soon As		
532	Barrel detectors	292.8 w	2/2/93	10/29/98		As Soon As		
533	Test MSU detectors	24.2 w	2/2/93	7/20/93		As Soon As f		PhysF111[0.2]
534	Receive MSU second iteration	14.4 w	5/21/93	8/30/93	533	As Soon As f		
535	Test MSU second iteration	30 w	5/31/93	12/24/93	534	As Soon As f		PhysF111[0.1]
536	Design 3 chip masks	24 w	6/1/94	11/15/94		As Soon As f		PhysF111[0.25]
537	Produce 3 chip prototype	14.6 w	12/21/94	4/1/95	536	As Soon As f		
538	Test 3 chip prototypes	6 w	3/29/95	5/9/95	537FS+2 w	As Soon As f		PhysF111[2]
539	Design 9 chip masks	38 w	12/1/95	8/28/96	536FS+20 w	As Soon As f		PhysU111[0.2]
540	Produce 9 chip prototype	72.4 w	4/16/96	9/25/97	539	As Soon As f		
541	Design 6 chip masks	12 w	8/1/97	10/24/97		Start No Ear		PhysU111[0.25],DesF111[0.5]
542	Test 9 chip prototypes	8 w	10/10/97	12/8/97	540FS+2 w	As Soon As f		MTF111[0.5],PhysF111[0.5],PhysU111
543	Produce 6 chip prototype	42 w	10/27/97	9/2/98	541	As Soon As f		
544	Test 6 chip prototype	8 w	9/3/98	10/29/98	543	As Soon As f		PhysF111[0.5],PhysU111
545	Readout connections and cables	280.4 w	2/19/93	8/20/98		As Soon As		
546	Prototype cable design	4 w	2/19/93	3/18/93		As Soon As f		ETF111[0.5],EEF111[0.25]
547	Microstrip cable prototype	76 w	3/19/93	9/1/94	546	As Soon As f		
548	Cable tests	4 w	9/2/94	9/29/94	547	As Soon As f		EEF111[0.25],ETF111[0.5]
549	Final cable design	8 w	2/3/97	3/28/97	548FS+36 w	Start No Ear		PhysU111[0.25],EEF111[0.25],ETF111[0.25]
550	Prototype cable production	16 w	4/1/98	7/23/98		Start No Ear		
551	Test cable system	4 w	7/24/98	8/20/98	550	As Soon As f		PhysF111[0.25],ETF111[0.25],EEF111[0.25]
552	Readout Mount	267.8 w	2/26/93	5/29/98		As Soon As		
553	SVX I MCM	6 w	2/26/93	4/8/93		As Soon As f	1.1.1.1.4.(25)	ETF111[0.63],EEF111
554	SVX I MCM tests	25.2 w	4/9/93	10/1/93	553	As Soon As f		EEF111[0.25],ETF111[0.25],PhysF111[0.25]
555	Cooling studies	10 w	5/14/93	7/22/93	553FS+5 w	As Soon As f		MTF111[0.2],MEF111[0.25]
556	SVX I MCM design	25.8 w	11/2/93	5/1/94	553,566	As Soon As f	1.1.1.1.4.(25)	EEF111[0.12]
557	SVX I-a MCM prototype	26 w	5/2/94	10/28/94	556	As Soon As f		
558	SVX I-a MCM prototype tests	4 w	1/9/95	2/3/95	557FS+10 w	As Soon As f		EEF111[0.5],ETF111[0.5]
559	SVX Iib MCM design	30 d	2/6/95	3/17/95	558,569SS+1 w	As Soon As f	1.1.1.1.4.(25)	EEF111[0.5]
560	SVX I-b MCM prototype	12 w	7/10/95	10/1/95	559	As Soon As f		
561	SVX Iib MCM prototype tests	20 w	11/27/95	4/16/96	560FS+8 w	As Soon As f		EEF111[0.2],PhysF111[0.2]
562	Final 3 chip MCM design	2 w	2/17/97	2/28/97	561SS+4 w,576SS+2 w	Start No Ear	1.1.1.1.4.(25)	EEF111[0.25]
563	Final 3 chip MCM tests	8 w	3/3/97	4/25/97	562	Start No Ear		EEF111[0.5],ETF111,PhysU111[0.25],PhysF111[0.25]
564	Design of all MCM types	60 w	3/17/97	5/29/98	563SS+2 w	As Soon As f		EEF111[0.1],DesF111[0.1]
565	SVX II	276.6 w	3/1/93	8/3/98		As Soon As		
566	SVX II Design	36 w	3/1/93	11/5/93		As Soon As f	1.1.1.1.1.(97)	EEF111[0.57],k\$[0.9]
567	SVX II submission a	12 w	11/2/93	1/24/94	566	As Soon As f		
568	SVX II submission a tests	26.2 w	4/1/94	10/1/94	567	As Soon As f		EEF111[0.5]
569	SVX II submission b	16 w	11/7/94	2/24/95	568	As Soon As f		
570	SVX II submission b tests	18 w	6/27/95	10/30/95	569	Finish No Ea		ETF111,EEF111[2],PhysF111[2]
571	SVX II b design changes	8 w	9/5/95	10/30/95	570SS+10 w	As Soon As f		EEF111
572	SVX II submission c	12.6 w	11/1/95	2/1/96	571	Start No Ear	1.1.1.1.2	k\$[0.58]
573	SVX II rad Hard design	6.4 w	11/3/95	12/20/95	572SS	As Soon As f		EEF111[1.06],EEU111[1.06]
574	SVX IId rad hard submission	17 w	12/20/95	4/18/96	573	As Soon As f	1.1.1.1.3	k\$[1.14]
575	SVX II submission c tests	10 w	2/9/96	4/18/96	572FS+1 w	As Soon As f		EEF111
576	SVX IId rad hard tests	6 w	5/2/96	6/13/96	574	Start No Ear		ETF111[2],EEF111[1.5],T\$nd,PhysF111
577	Cable Driver Chip	0.2 w	8/3/98	8/3/98		Start No Ear	1.1.1.1.1(0.03)	k\$[0.05]
578	Barrel Ladders	258.2 w	10/20/93	11/17/98		As Soon As		
579	Ladder Be location, thickness	5.6 w	10/20/93	11/26/93		As Soon As f		MEF111[0.18]
580	Ladder Thermal and mech. deflections	4 w	10/20/93	11/16/93		As Soon As f		MTF111[0.5],MEF111[0.25]
581	Ladder glue tests	25.6 w	11/17/93	5/14/94	580	As Soon As f		MTF111[0.25],MEF111[0.25]
582	Ladder wirebond tests	19.2 w	11/29/93	4/11/94	579	As Soon As f		MTF111[0.2],MEF111[0.25]
583	Ladder final specification	8.8 w	5/16/94	7/14/94	580,581	As Soon As f		DesF111[0.25],MEF111[0.25]
584	3 chip Ladder fixtures	37 w	1/15/95	9/30/95	583	Finish No Ea		DesF111[0.25],MEF111[0.25],PhysF111[0.25]
585	3 chip Ladder prototypes	36 w	10/1/95	6/14/96	537FS+2 w,538FS+2 w,560FS+	As Soon As f		MTF111[0.25],MEF111[0.25],CMM,PhysF111[0.2]
586	9 chip ladder fixtures	40 w	1/15/97	10/24/97		Start No Ear		MEF111[0.5],PhysF111[0.25],DesF111[0.75]
587	9 chip ladder prototypes	14.4 w	1/6/98	4/15/98	542SS+3 w,586FS+8 w	As Soon As f		MTF111[0.25],MEF111[0.25],PhysU111[0.25],CMM,PhysF111[0.
588	6 chip ladder fixtures	16 w	5/1/98	8/24/98	586	Start No Ear		MEF111[0.5],DesF111[0.75]
589	6 chip ladder prototypes	8 w	9/23/98	11/17/98	588FS+4 w	As Soon As f		MTF111[0.25],MEF111[0.25],PhysU111[0.25],CMM,PhysF111[0.
590	Barrel Bulkheads	147.4 w	1/1/94	11/7/96		As Soon As		
591	Fabricate bulkhead prototype	34.8 w	1/1/94	9/1/94		As Soon As f		DesF111[0.25],MEF111[0.5]
592	Ladder alignment, cable routing	2 w	9/15/94	9/29/94	591SS+1 w	As Soon As f		MTF111[0.5],MEF111[0.25]
593	Measure bulkhead prototype	4 w	10/3/94	10/28/94	591	As Soon As f		MTF111[0.25],CMM
594	Pressure/thermal tests	6 w	10/29/94	12/9/94	593	As Soon As f		MTF111[0.5]
595	Freeze bulkhead geometry	0.2 w	12/12/94	12/12/94	592,594	As Soon As f		
596	Be Bulkhead Prototype Production	40 w	12/1/95	9/12/96	595FS+20 w	Start No Ear		
597	Bulkhead cooling, mounting tests	6 w	9/27/96	11/7/96	596FS+2 w	As Soon As f		MTF111[0.5],MEF111[0.25],CMM
598	Cooling system	217.2 w	1/3/94	4/14/98		As Soon As		
599	Heat transfer studies	32 w	1/3/94	8/12/94		As Soon As f		MTF111[0.25],MEF111[0.25]
600	Manifold line sizing	32 w	8/15/94	3/24/95	599	As Soon As f		MTF111[0.5],MEF111[0.25]
601	System design	34 w	8/4/97	4/14/98	600SS+4 w	Start No Ear		MTF111[0.25],MEF111[0.4],DesF111[0.8]

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602	External Support	249.8 w	1/15/94	12/18/98		As Soon As		
603	1/2 cyl ANSYS simulation	2 w	1/15/94	1/28/94		As Soon As f		MEF111
604	1/2 cyl conceptual design	11 w	1/31/94	4/15/94	603	As Soon As f		MEF111[0.5]
605	1/2 cyl test structures	6 w	4/18/94	5/27/94	604	As Soon As f		MTF111[0.5],MEF111[0.5],PhysF111[0.25]
606	1/2 cyl structural tests	6 w	5/30/94	7/8/94	605	As Soon As f		MTF111[0.5],CMM[0.5]
607	1/2 cyl Final design	24 w	10/3/97	4/3/98		Start No Ear		DesF111,MEF111[0.5]
608	Installation fixture design	20 w	7/29/98	12/18/98	607FS+16 w	As Soon As f		MEF111[0.5],DesF111[0.75]
609	H disk	150.4 w	4/3/95	4/1/98		As Soon As		
610	Outer Det - 1st proto. prod	16 w	4/3/95	7/21/95		Start No Ear		PhysU111,ETU111[0.25]
611	Outer det - 1st proto test	15.6 w	8/7/95	11/24/95	610FS+2 w	As Soon As f		PhysU111[1.54],MEU111[1.03]
612	Inner+Outer detector design	16 w	2/2/96	5/23/96	611FS+12 w	As Soon As f		PhysU111[0.5],MTF111[0.1]
613	Inner+Outer detector proto. Prod.	12 w	6/24/96	9/17/96	612FS+4 w	As Soon As f		
614	Inner+outer Proto. Testing	12 w	9/18/96	12/12/96	613	As Soon As f		PhysU111[2],ETU111[0.5],MTF111[0.1],PhysF111[0.25]
615	Production detector mask design	12 w	12/13/96	3/18/97	614	As Soon As f		PhysU111[0.5]
616	H disk assembly + fixture design	47.4 w	4/16/97	4/1/98	615FS+4 w	As Soon As f		MEF111[0.5],DesF111[0.75],PhysU111[0.25]
617	F Disk	189.2 w	12/1/95	9/21/99		As Soon As		
618	Order prototype wedge detectors	0.2 w	12/1/95	12/1/95		As Soon As f		
619	F Wedge detector mask design	8 w	10/1/96	11/25/96	539FS+8 w,618	Start No Ear		DesF111[0.25],PhysU111[0.25],PhysF111[0.25]
620	Disk jumper design	3.4 w	2/3/97	2/25/97		Start No Ear		MTF111[0.25],MEF111[0.25]
621	F Disk assembly + fixture design	60 w	2/26/97	5/11/98	620	As Soon As f		MEF111[0.5],DesF111[0.75]
622	F Wedge prototype production	31 w	5/15/97	1/6/98	619FS+4 w	Start No Ear		
623	Evaluate F wedge prototype detectors	8 w	1/7/98	3/3/98	622	As Soon As f		PhysU111[0.25],MTF111[0.25],PhysF111[0.2]
624	F Disk test assembly	4 w	8/24/99	9/21/99	621SS+13 w,623,724	Start No Ear		MTF111[0.5],MEF111[0.25],PhysF111[0.25]
625	Radiation Tests	83.8 w	9/14/95	5/15/97		As Soon As		
626	Run 1	1 w	9/14/95	9/20/95		Start No Ear		PhysU111[1.5],MTF111[0.25],PhysF111[1.5]
627	Run 2 (wedge Proto)	6.2 w	1/4/96	2/15/96		Finish No Ea		PhysU111[1.5],MTF111[0.5],PhysF111[0.5]
628	Run 3 (SVX II)	4 w	5/10/96	6/7/96	574FS+3 w	As Soon As f		PhysU111[1.5],MTF111[0.25],PhysF111[0.5]
629	Run 4 (DS ladder)	2.6 w	4/29/97	5/15/97	542SS+4 w,678SS+16 w	As Soon As f		PhysU111[1.5],MTF111[0.25],PhysF111[0.5]
630	Test Beam	73.4 w	3/15/96	9/2/97		As Soon As		
631	Procure Magnet	16 w	3/15/96	7/8/96		Start No Ear		MEF111[0.1]
632	Instrument Table	12 w	12/3/96	3/6/97		Start No Ear		MTF111[0.25],MEF111[0.2],PhysU111[0.25]
633	Produce Beam Telescope	4 w	1/15/97	2/11/97	631SS+6 w	Start No Ear		PhysU111[0.5],MTF111[0.25]
634	Produce Test assemblies	12 w	2/5/97	4/29/97	585SS+2 w,633SS+3 w	As Soon As f		PhysU111[0.25],MTF111[0.25],PhysF111[0.25]
635	Run	13 w	6/2/97	9/2/97	631FS+12 w,632FS+12 w,633FS	As Soon As f		MTF111[0.25],PhysU111[3],PhysF111[0.5]
636	SILICON TRACKER CONSTRUCTION	314 w	8/10/94	11/13/00		As Soon As		
637	Detector systems	312 w	8/10/94	10/30/00		As Soon As		
638	Barrels + Ladders	308.4 w	8/10/94	10/4/00		As Soon As		
639	LADDER Admin	304.6 w	8/10/94	9/7/00		As Soon As		
640	Procure 3 chip SS wafers	250.2 w	8/10/94	8/2/99		As Soon As f	1.1.1.3.1,1.1.1.3.2	k\$[4.83],k\$c
641	Procure 9 chip wafers	10 w	8/10/94	10/18/94		As Soon As f	1.1.1.3.3,(9),1.1.1.3.4	k\$[7.64],k\$c[0.4]
642	Produce 3 chip SS wafers	99.2 w	4/20/95	4/7/97		As Soon As f		
643	Procure Bulkheads	178 w	12/6/95	7/7/99	595	Must Start O	1.1.1.3.12	k\$[1.77],k\$c[0.09]
644	Probe test ladder detectors	210 w	5/1/96	9/7/00	537,642SS+20 w,663FF+3 w	Start No Ear		MTF111[0.2],PStn,PhysF111[0.75],MTU111[2]
645	Procure ladder Be	26 w	8/1/96	2/13/97		Start No Ear	1.1.1.3.8,(85)	k\$[1.36],k\$c[0.04]
646	FY 96,97 Probe MOUs	0.2 w	10/1/96	10/1/96		Start No Ear	1.1.1.3.7(0.4)	k\$[1.17],k\$c[0.05]
647	Procure ladder fixtures FY96,97	26 w	10/1/96	4/14/97		Start No Ear	1.1.1.3.9,(4)	k\$[0.2]
648	Ladder fabrication FY97	0.19 w	10/1/96	10/1/96		Start No Ear	1.1.1.3.11(0.04)	k\$[0.03]
649	Evaluate Be parts	12 w	11/22/96	2/27/97	645SS+16 w	As Soon As f		MEF111[0.2],MTF111[0.4]
650	Manufacture ladder supports	30 w	12/2/96	7/11/97	583,585SS+4 w	Start No Ear		MTF111[0.25]
651	Procure 6 chip DS wafers	14 w	6/16/97	9/23/97		Start No Ear	1.1.1.3.5,1.1.1.3.6	k\$[3.54],k\$c[0.25]
652	M3-Silicon Tracker Ladder Production Begun	0 w	9/1/97	9/1/97	660SS	As Soon As		
653	FY 98 Probe MOUs	0.2 w	10/1/97	10/1/97		Start No Ear	1.1.1.3.7(2)	k\$[0.75],k\$c[0.03]
654	Procure ladder fixtures FY98	26 w	10/1/97	4/15/98		Start No Ear	1.1.1.3.9(2)	k\$[0.2]
655	Ladder fabrication FY98	0.4 w	7/1/98	7/2/98		Start No Ear	1.1.1.3.11(0.26)	k\$[0.25],k\$c[0.02]
656	Probe detectors FY99	0.2 w	4/1/99	4/1/99		Start No Ear	1.1.1.3.7(4)	
657	Procure ladder fixtures FY99	0.2 w	7/1/99	7/1/99		Start No Ear	1.1.1.3.9(4)	
658	Procure ladder Be fy99	0.2 w	5/3/99	5/3/99		Start No Ear	1.1.1.3.8,(15)	
659	Ladder Fabrication FY99	0.2 w	7/1/99	7/1/99		Start No Ear	1.1.1.3.11(7)	
660	3 Chip Ladders Mech assy	17 w	11/1/97	3/16/98		As Soon As f		MTF111[2],CMM,PhysF111[0.1]
661	Evaluate Bulkheads	45 w	9/1/98	8/2/99	643FF+6 w	Must Finish (MEF111[0.1],MTF111[0.3]
662	6 Chip Ladders	87.6 w	12/1/98	9/12/00		As Soon As		
663	Produce 6 chip DSDM wafers	84 w	12/1/98	8/16/00		Start No Ear		DSDM detectors
664	Produce 6 chip HDI	21 w	4/16/99	9/14/99	817SS+4 w	As Soon As f	1.1.1.5.2,(13)	
665	Assemble and test 6 Chip HDIs	43 w	10/6/99	8/21/00	664FS+3 w	As Soon As f	1.1.1.5.3,(16)	PhysU111[0.25],ETU111[0.5],TStd[0.5]
666	6 chip ladder fabrication	44 w	10/6/99	8/28/00	665SS,817FS+4 w	As Soon As f		MTF111[1.5],WBndr[0.5],CMM
667	6 Chip Ladder Fabrication 20% Complete	0 w	1/31/00	1/31/00	666SS+47 %	As Soon As		
668	6 Chip Ladder Fabrication 80% Complete	0 w	7/12/00	7/12/00	666SS+85 %	As Soon As		
669	6 Chip Ladder Fabrication Complete	0 w	8/28/00	8/28/00	666	As Soon As		
670	6 chip ladder testing/burn-in	45 w	10/13/99	9/12/00	666SS+1 w	As Soon As f		TStd[0.5],burn-in stand[0.5],laser stand[0.25]
671	3 Chip ladder production	53 w	2/22/99	3/17/00		As Soon As		
672	3 chip ladder fabrication	51 w	2/22/99	3/3/00	808FF+6 w	Start No Ear		CMM,MTF111[0.75],WBndr[0.2]
673	3 Chip Ladder Fabrication 20% Complete	0 w	5/10/99	5/10/99	672SS+30 %	As Soon As		

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674	3 Chip Ladder Fabrication 80% Complete	0 w	10/26/99	10/26/99	672SS+90 %	As Soon As		
675	3 Chip Ladder Fabrication Complete	0 w	3/3/00	3/3/00	672	As Soon As		
676	3 chip ladder testing/burn-in	49 w	3/22/99	3/17/00	672SS+4 w	As Soon As f		laser stand[0.5],burn-in stand[0.5]
677	9 Chip ladder production	84.6 w	1/1/99	9/11/00		As Soon As		
678	Produce 9 chip wafers (micron)	79 w	1/1/99	8/1/00	542,641FS+94 w	Finish No Ea		
679	Produce 9 chip HDI	60 w	1/4/99	3/17/00		Start No Earl		
680	Assemble and test 9 Chip HDIS	77 w	1/18/99	8/1/00	679SS+2 w	As Soon As f	1.1.1.5.3(.16)	ETU111[0.5],PhysU111[0.25],TStnd[0.5]
681	9 chip ladder fabrication	70 w	4/1/99	8/25/00	680SS	Start No Earl		MTF111[1.5],WBndr[0.65],CMM,PhysF111
682	9 Chip Ladder Fabrication 20% Complete	0 w	11/4/99	11/4/99	681SS+50 %	As Soon As		
683	9 Chip Ladder Fabrication 80% Complete	0 w	6/27/00	6/27/00	681SS+88 %	As Soon As		
684	9 Chip Ladder Fabrication Complete	0 w	8/25/00	8/25/00	681	As Soon As		
685	9 chip ladder testing/burn-in	72 w	4/1/99	9/11/00	681SS	As Soon As f		burn-in stand,laser stand[0.5]
686	Barrel Construction	58.4 w	8/2/99	10/4/00		As Soon As		
687	Design and fabricate fixtures and assembly stations	15 w	8/2/99	11/15/99		Start No Earl		
688	Align and measure first bulkhead set	5 w	9/21/99	10/25/99		Start No Earl		
689	Install ladders in barrel B1	8 w	3/29/00	5/23/00	688	Start No Earl		
690	Align ladders in B1 barrel	2 w	5/24/00	6/7/00	689	As Soon As f		
691	Read out B1 barrel	2 w	6/29/00	7/13/00	690,850	As Soon As f		
692	Complete first barrel	0 w	7/13/00	7/13/00	691	As Soon As		
693	Install ladders in barrel B2	1 w	5/8/00	5/12/00		Start No Earl		
694	Align ladders in B2 barrel	2 w	5/15/00	5/26/00	693	As Soon As f		
695	Read out B2 barrel	2 w	6/6/00	6/19/00	694,852	As Soon As f		
696	Install ladders in barrel B3	1 w	6/13/00	6/19/00	694FS+2 w	As Soon As f		
697	Align ladders in B3 barrel	2 w	6/20/00	7/3/00	696	As Soon As f		
698	Read out B3 barrel	1 w	7/12/00	7/18/00	697,853,695	As Soon As f		
699	Install ladders in barrel B4	1 w	7/12/00	7/18/00	697FS+1 w	As Soon As f		
700	Align ladders in B4 barrel	2 w	7/19/00	8/1/00	699	As Soon As f		
701	Read out B4 barrel	1 w	8/2/00	8/8/00	700,698	As Soon As f		
702	Install ladders in barrel B5	1 w	8/9/00	8/15/00	700FS+1 w	As Soon As f		
703	Align ladders in B5 barrel	2 w	8/16/00	8/29/00	702	As Soon As f		
704	Read out B5 barrel	1 w	8/30/00	9/6/00	703,701	As Soon As f		
705	Install ladders in barrel B6	1 w	9/7/00	9/13/00	703FS+1 w	As Soon As f		
706	Align ladders in B6 barrel	2 w	9/14/00	9/27/00	705	As Soon As f		
707	Read out B6 barrel	1 w	9/28/00	10/4/00	706,704	As Soon As f		
708	F Disks	237.6 w	1/3/96	10/13/00		As Soon As		
709	F Disk Admin	225 w	1/3/96	7/17/00		As Soon As		
710	Order F disk wafers	0.2 w	1/3/96	1/3/96		Start No Earl	1.1.1.2.1.1(.75),1.1.1.2.1.7	k\$[3.94],k\$c[0.2]
711	FY96 MOU UCR and OU	0.2 w	10/1/96	10/1/96		Start No Earl	1.1.1.2.1.3(.25)	k\$[0.14]
712	Procure F disk Supports FY97	0.19 w	10/1/96	10/1/96		Start No Earl	1.1.1.2.1.6(0.02)	k\$[0.03]
713	Procure F disk supports FY98	20 w	10/13/97	3/16/98	621SS+44 w	Start No Earl	1.1.1.2.1.6(.98)	k\$[1.5],k\$c[0.15]
714	Procure F wedge fixtures FY98	32 w	12/1/97	7/27/98		Start No Earl	1.1.1.2.1.4(.2)	k\$[0.27],k\$c[0.04]
715	Probe test F wafers FY99	12 w	5/3/99	7/27/99		Start No Earl	1.1.1.2.1.3(.25)	
716	Procure F wedge fixtures FY99	12 w	3/1/99	5/21/99		Start No Earl	1.1.1.2.1.4(.8)	
717	Probe test F wedges	117.4 w	3/4/98	7/17/00	723FF	As Soon As f	1.1.1.2.1.3(.5)	MTU111,PhysU111[0.5],PStn,MTF111[0.5],k\$[0.25],k\$c[0.02]
718	Procure F wedge Be	20 w	5/30/98	10/20/98		Start No Earl	1.1.1.2.1.2	k\$[0.31],k\$c[0.03],MTF111[0.2]
719	Disk Spares FY 97	0.2 w	10/1/96	10/1/96		Start No Earl	1.1.1.2.3(0.39)	k\$[0.38],k\$c[0.03]
720	Disk Spares FY98	0.2 w	10/1/97	10/1/97		Start No Earl	1.1.1.2.3(0.61)	k\$[0.6],k\$c[0.05]
721	F Wedge And Disk Production	130 w	3/4/98	10/13/00		As Soon As		
722	Produce F Disk Wafers (Micron)	104.6 w	3/4/98	4/14/00	622	Finish No Ea		
723	Produce F disk wafers(Eurisys)	75 w	1/15/99	7/17/00		Start No Earl	1.1.1.2.1.1(.25)	k\$[0.25]
724	Produce F Disk HDI	22 w	3/22/99	8/24/99	564SS+60 w,815SS+8 w	Start No Earl	1.1.1.5.1(0.55)	MTU111[0.25],PhysU111[0.25],k\$[1.68],k\$c[0.16]
725	Assemble and Test F disk HDIs	39 w	9/16/99	7/3/00	724FS+3 w,804SS+8 w	Start No Earl	1.1.1.5.3(.16)	PhysU111[0.25],k\$[0.25],k\$c[0.02],TStnd[0.5],ETU111[0.5]
726	Produce F wedge assemblies	38 w	11/3/99	8/14/00	722FF+4 w,723FF+4 w,725FF+4 w	As Soon As f	1.1.1.2.1.5(1)	MTF111[2],CMM,PhysF111,WBndr,k\$[0.06],PhysU111
727	M3-Silicon Tracker F Wedge Production Begun	0 w	11/8/99	11/8/99	726SS	As Soon As		
728	F Wedge Assemblies 20% Complete	0 w	1/24/00	1/24/00	726SS+30 %	As Soon As		
729	F Wedge Assemblies 80% Complete	0 w	6/20/00	6/20/00	726SS+80 %	As Soon As		
730	F Wedge Assemblies Complete	0 w	8/14/00	8/14/00	726	As Soon As		
731	F wedge testing/burn-in	38 w	11/17/99	8/28/00	726SS+2 w	As Soon As f		PhysU111,TStnd[0.5],burn-in stand[0.2],laser stand[0.2]
732	Mount F Wedges On Rings and Read Out	29 w	3/22/00	10/13/00		As Soon As		MTF111[0.5],MEF111[0.5],CMM[0.5],PhysF111[0.5]
733	Install wedges for disk F0	1 w	3/22/00	3/28/00	713FS+4 w,731SS+2 w	Start No Earl		
734	Install wedges for barrel disk F1	2 w	3/29/00	4/11/00	733	As Soon As f		
735	Read out F1 disk	2 w	6/29/00	7/13/00	734,850	Start No Earl		
736	Install wedges for barrel disk F2	1 w	4/19/00	4/25/00	734FS+1 w	As Soon As f		
737	Read out F2 disk	1 w	6/6/00	6/12/00	736,852	As Soon As f		
738	Install wedges for barrel disk F3	1 w	5/3/00	5/9/00	736FS+1 w	As Soon As f		
739	Read out F3 disk	1 w	7/12/00	7/18/00	738,737,853	As Soon As f		
740	Three Barrel F-disks Complete	0 w	7/18/00	7/18/00	739	As Soon As		
741	Install wedges for end disk F4	1 w	5/17/00	5/23/00	738FS+1 w	As Soon As f		
742	Read out F4 disk	1 w	5/24/00	5/31/00	741	As Soon As f		
743	Install wedges for end disk F5	1 w	6/1/00	6/7/00	741FS+1 w	As Soon As f		
744	Read out F5 disk	1 w	6/8/00	6/14/00	743,742	As Soon As f		
745	Install wedges for end disk F6	1 w	6/15/00	6/21/00	743FS+1 w	As Soon As f		

ID	Task Name	Duration	Start	Finish	Predecessors	Constraint	WBS	Resource Names
746	Read out F6 disk	1 w	6/22/00	6/28/00	745,744	As Soon As f		
747	Three End F-Disks Complete	0 w	6/28/00	6/28/00	746	As Soon As		
748	Install wedges for barrel disk F7	1 w	6/29/00	7/6/00	745FS+1 w	As Soon As f		
749	Read out F7 disk	1 w	7/7/00	7/13/00	748,746	As Soon As f		
750	Install wedges for barrel disk F8	1 w	7/14/00	7/20/00	748FS+1 w	As Soon As f		
751	Read out F8 disk	1 w	7/21/00	7/27/00	750,749	As Soon As f		
752	Install wedges for barrel disk F9	1 w	8/15/00	8/21/00	750FS+1 w,726	As Soon As f		
753	Read out F9 disk	1 w	8/22/00	8/28/00	752,751	As Soon As f		
754	Six Barrel F-Disks Complete	0 w	8/28/00	8/28/00	753	As Soon As		
755	Install wedges for end disk F10	1 w	8/29/00	9/5/00	752FS+1 w	As Soon As f		
756	Read out F10 disk	1 w	9/6/00	9/12/00	755,753	As Soon As f		
757	Install wedges for end disk F11	1 w	9/13/00	9/19/00	755FS+1 w	As Soon As f		
758	Read out F11 disk	1 w	9/20/00	9/26/00	757,756	As Soon As f		
759	Install wedges for end disk F12	1 w	10/2/00	10/6/00	757FS+1 w	Start No Earl		
760	Read out F12 disk	1 w	10/9/00	10/13/00	759,758	As Soon As f		
761	Six End F-Disks Complete	0 w	10/13/00	10/13/00	760	As Soon As		
762	M3-All Silicon Tracker F-Disks Complete	0 w	10/13/00	10/13/00	761	As Soon As		
763	H Disks	175.4 w	4/16/97	10/30/00		As Soon As		
764	H Wedge Admin	149 w	4/16/97	4/24/00		As Soon As		
765	Procure H wedge substrates FY 97	0.97 d	4/16/97	4/16/97		As Soon As f	1.1.1.2.2.3(0.04)	k\$[0.03]
766	Probe test H wafers	136 w	7/18/97	4/24/00	772SS+12 w,773FF	As Soon As f	1.1.1.2.2.2	MTU111[1.5],PhysU111,PStn,k\$[0.1]
767	Procure H wedge fixtures FY98	12 w	4/2/98	6/25/98	616	Start No Earl	1.1.1.2.2.4(.5)	MEF111[0.25],k\$[0.15],k\$c[0.02]
768	Procure H wedge fixtures FY99	12 w	4/1/99	6/24/99		Start No Earl	1.1.1.2.2.4(.5)	MTF111
769	Procure H disk supports	16 w	5/29/98	9/21/98	616FS+8 w	As Soon As f	1.1.1.2.2.6	
770	Procure H wedge substrates FY98	12 w	8/3/98	10/26/98		Start No Earl	1.1.1.2.2.3(0.96)	k\$[0.63],k\$c[0.06]
771	H Wedge And Disk Production	175.4 w	4/16/97	10/30/00		As Soon As		
772	Produce first batch of H disk wafers	130.4 w	4/16/97	12/1/99	615FS+4 w	As Soon As f	1.1.1.2.2.1	PhysU111[1.5],k\$[2.21],k\$c[0.11]
773	Produce second batch of H-disk wafers	12 w	2/1/00	4/24/00		Start No Earl		
774	Produce H disk HDI	16 w	3/1/99	6/21/99	816SS+4 w	Start No Earl	1.1.1.5.1(.42)	
775	Assemble and Test H disk HDIs	33 w	7/7/99	3/10/00	774FS+2 w	As Soon As f	1.1.1.5.3(.16)	PhysU111[0.25],ETU111[0.5],TStnd
776	H half wedge fabrication	42 w	7/21/99	5/26/00	616SS+13 w,766SS+8 w,775SS	As Soon As f	1.1.1.2.2.5	MTF111[2],CMM,PhysF111[0.5],k\$[0.05],WBndr[0.7],burn-in sta
777	H Wedge Production Begun	0 w	7/19/99	7/19/99	776SS	As Soon As		
778	H Half-Wedge Fabrication 20% Complete	0 w	10/15/99	10/15/99	776SS+35 %	As Soon As		
779	H Half-Wedge Fabrication 80% Complete	0 w	3/29/00	3/29/00	776SS+80 %	As Soon As		
780	H Half Wedge Fabrication Complete	0 w	5/26/00	5/26/00	776	As Soon As		
781	H half wedge testing/burn-in	42 w	7/28/99	6/5/00	776SS+1 w	As Soon As f		PhysU111,TStnd[0.5],PhysF111[0.25]
782	H Full Wedge Assembly	18.4 w	3/30/00	8/8/00		As Soon As		
783	Assemble full wedges for H1	5 w	3/30/00	5/3/00	776SS+80 %	As Soon As f		
784	Assemble full wedges for H2	5 w	5/4/00	6/8/00	783	As Soon As f		
785	Assemble full wedges for H3	5 w	5/30/00	7/3/00	776	As Soon As f		
786	Assemble full wedges for H4	5 w	7/5/00	8/8/00	785	As Soon As f		
787	Mount H Wedge On Rings, Align, And Read Out	29 w	4/6/00	10/30/00		As Soon As		MTF111[2],MEF111[0.5],PhysU111[3],CMM[0.5],TStnd[0.25],F
788	Install wedges for disk H1	5 w	4/6/00	5/10/00	783SS+1 w	As Soon As f		
789	Align H1 disk	1 w	5/11/00	5/17/00	788	As Soon As f		
790	Readout H1 disk	2 w	5/18/00	6/1/00	789	As Soon As f		
791	Install wedges for disk H2	5 w	5/25/00	6/29/00	789FS+1 w,784SS+1 w	As Soon As f		
792	Align H2 disk	1 w	6/30/00	7/7/00	791	As Soon As f		
793	Readout H2 disk	2 w	7/10/00	7/21/00	792	As Soon As f		
794	Install wedges for disk H3	5 w	7/17/00	8/18/00	792FS+1 w,785SS+1 w	As Soon As f		
795	Align H3 disk	1 w	8/21/00	8/25/00	794	As Soon As f		
796	Readout H3 disk	2 w	8/28/00	9/11/00	795	As Soon As f		
797	Install wedges for disk H4	5 w	9/5/00	10/9/00	795FS+1 w,786SS+1 w	As Soon As f		
798	Align H4 disk	1 w	10/10/00	10/16/00	797	As Soon As f		
799	Readout H4 disk	2 w	10/17/00	10/30/00	798	As Soon As f		
800	M3-First Silicon Tracker H Disk Assembled	0 w	5/10/00	5/10/00	788	As Soon As		
801	M3-All Silicon Tracker H Disks Complete	0 w	10/30/00	10/30/00	799	As Soon As		
802	Electronics Systems	215.8 w	5/3/96	9/13/00		As Soon As		
803	Electronics Admin	147.8 w	5/3/96	4/30/99		As Soon As		
804	Probe SVX II (1st lot)	8 w	5/3/96	6/28/96	574FS+2 w	As Soon As f		MTU111[1.5],PhysU111[0.5],PStn
805	Produce rad hard SVX II-2nd lot	14 w	5/20/96	8/27/96		Must Start O	1.1.1.4.1-1.1.1.4.6,1.1.1.4.8	k\$[4.71]
806	Probe SVX II (2nd lot)	40 w	10/1/96	7/23/97	805FS+2 w	Start No Earl	1.1.1.4.7(0.82)	MTU111[0.5],PhysU111[0.5],PStn,TStnd,k\$[0.23]
807	Produce testing systems	52 w	10/15/96	10/30/97		Start No Earl	1.1.1.1.5(.2)	PhysF111[0.5],EEF111[0.5],PhysU111,k\$[0.25],k\$c[0.02]
808	Produce 3 chip flex circuit	87.2 w	3/31/97	1/8/99	563SS+4 w	Start No Earl	1.1.1.5.2(0.15)	ETF111[0.5],PhysU111,k\$[0.38],k\$c[0.03]
809	Disk HDI FY97	0.42 w	7/1/97	7/3/97		Start No Earl	1.1.1.5.1(0.03)	k\$[0.11],k\$c[0.01]
810	Barrel HDI FY98	0.4 w	1/2/98	1/6/98		Start No Earl	1.1.1.5.2(0.2)	k\$[1.53],k\$c[0.12]
811	Chip test FY98	0.2 w	5/1/98	5/1/98		Start No Earl	1.1.1.4.7(0.18)	k\$[0.05]
812	Procure test systems fy 98	0.4 w	6/1/98	6/2/98		Start No Earl	1.1.1.1.5(.2)	k\$[0.2],k\$c[0.02]
813	Procure Test systems FY 99	0.2 w	1/4/99	1/4/99		Start No Earl	1.1.1.1.5(.6)	
814	Produce 9 chip HDI FY99	6 w	1/4/99	2/12/99		Start No Earl	1.1.1.5.2(.52)	
815	Produce F disk HDI prototypes	8 w	1/11/99	3/5/99		Start No Earl		
816	Produce H disk HDI prototypes	10 w	1/11/99	3/19/99		Start No Earl		
817	Produce 6 chip HDI prototype	6 w	3/22/99	4/30/99		Start No Earl		

ID	Task Name	Duration	Start	Finish	Predecessors	Constraint	WBS	Resource Names
818	Assembly and Test FY98	0.2 w	6/1/98	6/1/98		Start No Ear	1.1.1.5.3(.35)	
819	Cables	49.2 w	7/13/99	7/11/00		As Soon As		
820	Cables for 10% test	22 w	7/13/99	12/16/99		As Soon As		
821	Procure inner(low mass) cables for 10% test	22 w	7/13/99	12/16/99		Start No Ear		
822	Procure outer(high mass) cables for 10% test	13 w	7/21/99	10/20/99		Start No Ear		
823	Production cables	42.8 w	8/23/99	7/6/00		As Soon As		
824	Design, procure and test inner(low mass) cables	42 w	8/27/99	7/6/00		Start No Ear	1.1.1.5.4	k\$[1.5],k\$c[0.3]
825	Design, procure and test outer(high mass) cables	33.6 w	8/23/99	5/1/00		Start No Ear	1.1.1.5.5	
826	Transition Card	25 w	1/17/00	7/11/00		Start No Ear	1.1.1.5.6	ETU111[0.25]
827	Interface card	59.4 w	7/2/99	9/13/00		As Soon As		
828	Interface card prototype layout	15.4 w	7/2/99	10/20/99		Start No Ear		
829	Interface card prototype assembly and test	14 w	10/21/99	2/11/00	828	As Soon As f		
830	Interface card prototype 2 layout	3 w	3/13/00	3/31/00	829FS+4 w	As Soon As f		
831	Interface card prototype 2 assembly and test	8 w	4/10/00	6/5/00	830FS+1 w	As Soon As f		
832	Interface card final revisions	11 w	3/20/00	6/5/00	829FS+5 w	As Soon As f		
833	Interface card production	13 w	6/6/00	9/6/00	832	As Soon As f	1.1.1.5.8	EEU111[0.5],ETU111[0.75]
834	Interface Card Production Complete	0 w	9/6/00	9/6/00	833	As Soon As		
835	Interface card testing	12 w	6/20/00	9/13/00	833SS+2 w	As Soon As f		
836	Bias System	17 w	3/1/00	6/28/00		Start No Ear	1.1.1.5.7	ETF111,EEF111[0.2]
837	Assembly and Installation	66.4 w	7/15/99	11/13/00		As Soon As		
838	10% test	52.8 w	8/16/99	9/8/00		As Soon As		
839	Install cooling, power and DAQ in lab C	7.6 w	8/16/99	10/7/99		Start No Ear		
840	Complete test station	8.6 w	8/16/99	10/14/99		Start No Ear		
841	Twelve ladder test	11 w	11/5/99	2/7/00	839,840FS+3 w	As Soon As f		
842	Twelve Ladder Test Complete	0 w	2/7/00	2/7/00	841	As Soon As		
843	First barrel/disk test	10 w	6/29/00	9/8/00	842,850	As Soon As f		
844	Support cylinder	42 w	8/16/99	6/22/00		As Soon As		
845	Complete design of cylinder, mount, and beam tube sup	5 w	8/16/99	9/20/99		Start No Ear		MEF111,PhysF111,DesF111
846	Manufacture support structure and mounts	16 w	8/16/99	12/8/99	602,845SS	As Soon As f	1.1.1.6.1	MTF111[0.5],MEF111[0.5],k\$(0.15),k\$c[0.03]
847	Align cylinder in Sci-Fi barrel 1	2.6 w	5/30/00	6/15/00	846,426	As Soon As		MTF112[2],PhysF111,CMM112
848	Move cylinder to Sci Det, align on LK	1 w	6/16/00	6/22/00	847	As Soon As f		CMM111,MTF111,PhysF111
849	Barrel/Disk Module assemblies	21.4 w	5/30/00	10/27/00		As Soon As		
850	Install F1 disk on B1 barrel	1 w	6/22/00	6/28/00	734FS+2 w,690FS+2 w	As Soon As f		
851	M2-First Silicon Tracker Barrel/Disk Module Complete	0 w	6/28/00	6/28/00	850	As Soon As		
852	Install F2 disk on B2 barrel	1 w	5/30/00	6/5/00	736,694	As Soon As f		
853	Install F3 disk on B3 barrel	1 w	7/5/00	7/11/00	738,697,852	As Soon As f		
854	Three Barrel/Disk Modules Complete	0 w	7/11/00	7/11/00	853	As Soon As		
855	Install three barrel/disk modules in south support	3 w	7/14/00	8/3/00	848,853FF+1 w,691,735	As Soon As f		
856	Assemble F4, F5, and F6 end disks into end-disk modul	1 w	6/29/00	7/6/00	746	As Soon As f		
857	Install south end disk module into support	1 w	8/4/00	8/10/00	856,855	As Soon As f		
858	Install F7 disk on B4 barrel	1 w	8/2/00	8/8/00	700,748	As Soon As f		
859	Install F8 disk on B5 barrel	1 w	8/30/00	9/6/00	703,750	As Soon As f		
860	Install F9 disk on B6 barrel	1 w	9/28/00	10/4/00	706,752	As Soon As f		
861	All Barrel /Disk Modules Complete	0 w	10/4/00	10/4/00	860	As Soon As		
862	Install three barrel/disk modules in north support	3 w	9/21/00	10/11/00	855,860FF+1 w,749,701	As Soon As f		
863	Assemble F10, F11, and F12 end disks into end-disk mc	1 w	10/16/00	10/20/00	760	As Soon As f		
864	Install north end disk module into support	1 w	10/23/00	10/27/00	863,862	As Soon As f		
865	M3-All Silicon Tracker Barrels/Disks Complete	0 w	10/27/00	10/27/00	862,864	As Soon As		
866	Mechanical systems and DAB Preparation	57.8 w	7/15/99	9/13/00		As Soon As		
867	Plumbing and cooling system	46 w	7/15/99	6/20/00	598FS+24 w	Start No Ear	1.1.1.6.3	MTF111[0.25],MEF111[0.25],k\$(0.16),k\$c[0.03],DAB_Gas_Plum
868	Alignment System	34 w	1/3/00	8/29/00		Start No Ear	1.1.1.6.2	MTF111,ETF111,PhysU111[0.5],MEF111[0.5],PhysF111[0.5],k\$
869	Monitoring systems	30 w	10/1/99	5/15/00		Start No Ear	1.1.1.6.5	ETF111[0.5],EEF111[0.25],MTF111[0.5],PhysU111[2],PhysF111
870	Air System	23 w	4/3/00	9/13/00		Start No Ear	1.1.1.6.4	MTF111[0.25],MEF111[0.25],k\$(0.15),k\$c[0.03],DAB_Gas_Plum
871	Produce installation fixtures	20 w	1/17/00	6/5/00		Start No Ear		MTF111[0.25]
872	South H-Disks Ready to Move to DAB	0 w	8/4/00	8/4/00	793FS+2 w	As Soon As		
873	North H-Disks Ready to Move to DAB	0 w	11/13/00	11/13/00	799FS+2 w	As Soon As		
874	South Half-Cylinder Complete and Ready to Move to DAB	0 w	8/10/00	8/10/00	857,855	As Soon As		
875	North Half-Cylinder Complete and Ready to Move to DAB	0 w	10/27/00	10/27/00	862,864	As Soon As		
876	M1-Central Silicon Complete	0 w	10/27/00	10/27/00	874,875	As Soon As		