U.S. ATLAS M&&O Estimate
Cost Book AY$

Funding All **Funding Type:** Research Program

Institutions: All

U.S. ATLAS M&&O Estimate Cost 1/5/2009 3:34:58 PM

WBS Number: 3.6 **Description:** Trigger/DAQ

Institution : **Contact**

The US ATLAS M&O estimate for the Trigger DAQ (TDAQ) includes costs for Pre-operations, Operations, Maintenance, and CERN common costs. The Maintenance Costs are included in the CERN common costs.

Cost Summary: (R)	Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
	7804	0	0	7804	7361	220	189	34	4307.5	705.9

MANPOWER (k$) SUMMARY:	FY 06 (hrs) (k$)	FY 07 (hrs) (k$)	FY 08 (hrs) (k$)	FY 09 (hrs) (k$)	FY 10 (hrs) (k$)	FY 11 (hrs) (k$)	FY 12 (hrs) (k$)
Computer Professional R	0	16982	21256	19118	14508	14508	14508
	0	1169.418	1473.797	1317.455	1062.009	1089.549	1117.898
Electrical Engineer R	0	2656	1197	0	0	0	0
	0	252.95	98.057	0	0	0	0

MATERIAL SUMMARY:	FY 06 (k$)	FY 07 (k$)	FY 08 (k$)	FY 09 (k$)	FY 10 (k$)	FY 11 (k$)	FY 12 (k$)
Other R	0.0	20.6	20.0	5.8	6.0	6.1	6.3
Travel R	0.0	49.1	29.8	0.0	6.4	10.3	14.5

WBS Number: 3.6.1 **Description:** Pre Operations

Institution : **Contact**

Pre operations test beam TDAQ shall include:
1. Updating the user documentation to include latest software and hardware descriptions and practices
2. Electronic and software integration of test beam systems prior to test beam data taking.
3. On-call support and maintenance of running test beam systems.
4. Archival storage of software and configuration information.
5. Support of reference and distribution systems for TDAQ software.

Cost Summary: (R)	Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
	1471	0	0	1471	1221	220	7	24	818.4	0.0

MANPOWER (k$) SUMMARY:	FY 06 (hrs) (k$)	FY 07 (hrs) (k$)	FY 08 (hrs) (k$)	FY 09 (hrs) (k$)	FY 10 (hrs) (k$)	FY 11 (hrs) (k$)	FY 12 (hrs)
Computer Professional R	0	9005	8897	0	0	0	0
	0	619.599	586.762	0	0	0	0
Electrical Engineer R	0	2336	440	0	0	0	0
	0	207.5	26.517	0	0	0	0

MATERIAL SUMMARY:	FY 06 (k$)	FY 07 (k$)	FY 08 (k$)	FY 09 (k$)	FY 10 (k$)	FY 11 (k$)	FY 12 (k$)
Travel R	0.0	17.6	4.6	0.0	0.0	0.0	0.0

WBS Number: 3.6.1.1 **Description:** Supervisor RoI Builder

Institution : **Contact** Not available

Cost Summary: (R)	Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
	276	0	0	276	276	0	0	0	156.9	0.0

MANPOWER (k$) SUMMARY:	FY 06 (hrs) (k$)	FY 07 (hrs) (k$)	FY 08 (hrs) (k$)	FY 09 (hrs) (k$)	FY 10 (hrs) (k$)	FY 11 (hrs) (k$)	FY 12 (hrs)
Computer Professional R	0	311	585	0	0	0	0
	0	36.19	68.074	0	0	0	0
Electrical Engineer R	0	1656	88	0	0	0	0
	0	166.519	5.303	0	0	0	0

WBS Number: 3.6.1.1.1 **Description:** Supervisor RoI Builder - ANL

Institution : ANL-TDAQ **Contact** Not available

Cost Summary: (R)	Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
	220	0	0	220	220	0	0	0	125.1	0.0

MANPOWER (k$) SUMMARY:	FY 06 (hrs) (k$)	FY 07 (hrs) (k$)	FY 08 (hrs) (k$)	FY 09 (hrs) (k$)	FY 10 (hrs) (k$)	FY 11 (hrs) (k$)	FY 12 (hrs)
Computer Professional R	0	311	585	0	0	0	0
	0	36.19	68.074	0	0	0	0
Electrical Engineer R	0	816	0	0	0	0	0
	0	115.896	0	0	0	0	0

CONTINGENCY FACTORS:	*Risk*				*Weight*			Cont %
	Technical	C o s t	Schedule	Des i gn	Technical	C o s t	Schedule	
	0	0	0	0	0	0	0	0

WBS Number: 3.6.1.1.2 **Description:** Supervisor RoI Builder - MSU

Institution : Michigan State University-tdaq **Contact** Not available

Cost Summary: (R)

Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
56	0	0	56	56	0	0	0	31.8	0.0

MANPOWER (k$) SUMMARY:

	FY 06 (hrs) (k$)	FY 07 (hrs) (k$)	FY 08 (hrs) (k$)	FY 09 (hrs) (k$)	FY 10 (hrs) (k$)	FY 11 (hrs) (k$)	FY 12 (hrs)
Electrical Engineer R	0	840	88	0	0	0	0
	0	50.623	5.303	0	0	0	0

CONTINGENCY FACTORS:

Risk				*Weight*			
Technical	C o s t	Schedule	Des i gn	Technical	C o s t	Schedule	Cont %
0	0	0	0	0	0	0	0

WBS Number: 3.6.1.2 **Description:** Communications and Travel

Institution : **Contact** Not available

Consultation and effective interaction with the system designers will require both travel and phone or video conferencing. This area includes videoconferencing and travel in support of the test beam TDAQ role during pre

Cost Summary: (R)	Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
	31	0	0	31	0	0	7	24	0.0	0.0

MATERIAL SUMMARY:	FY 06 (k$)	FY 07 (k$)	FY 08 (k$)	FY 09 (k$)	FY 10 (k$)	FY 11 (k$)	FY 12 (k$)
Travel R	0.0	17.6	4.6	0.0	0.0	0.0	0.0

WBS Number: 3.6.1.2.1 **Description:** Comm. and Travel - ANL

Institution : ANL-TDAQ **Contact** Not available

Consultation and effective interaction with the system designers will require both travel and phone or video conferencing. This area includes videoconferencing and travel in support of the test beam TDAQ role during pre

This includes 1 trip to CERN per year in '03 and 2 in '04 and '06 for an EE or CS at 2.5k$ **Details of Estimate:**
per trip plus 1.5k$ per year in support of video conferencing and phone communications

Cost Summary: (R)	Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
	24	0	0	24	0	0	0	24	0.0	0.0

MATERIAL SUMMARY:	FY 06 (k$)	FY 07 (k$)	FY 08 (k$)	FY 09 (k$)	FY 10 (k$)	FY 11 (k$)	FY 12 (k$)
Travel R	0.0	13.6	3.2	0.0	0.0	0.0	0.0

CONTINGENCY FACTORS:	*Risk*				*Weight*			
	Technical	C o s t	Schedule	Des i gn	Technical	C o s t	Schedule	Cont %
	0	0	0	0	0	0	0	0

WBS Number: 3.6.1.2.2 **Description:** Comm. and Travel - MSU

Institution : Michigan State University-tdaq **Contact** Not available

Consultation and effective interaction with the system designers will require both travel and phone or video conferencing. This area includes videoconferencing and travel in support of the test beam TDAQ role during pre

Details of Estimate: This includes 1 trip to CERN per year in '03 and 2 in '04 and '06 for an EE or CS at 2.5k$ per trip plus 1.5k$ per year in support of video conferencing and phone communications

Cost Summary: (R)	Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
	7	0	0	7	0	0	7	0	0.0	0.0

MATERIAL SUMMARY:	FY 06 (k$)	FY 07 (k$)	FY 08 (k$)	FY 09 (k$)	FY 10 (k$)	FY 11 (k$)	FY 12 (k$)
Travel R	0.0	4.0	1.4	0.0	0.0	0.0	0.0

CONTINGENCY FACTORS:	*Risk*				*Weight*			
	Technical	C o s t	Schedule	Des i gn	Technical	C o s t	Schedule	Cont %
	0	0	0	0	0	0	0	0

WBS Number: 3.6.1.3 **Description:** Programming Support

Institution : **Contact** Not available

The TDAQ software is primarily written by the members of the TDAQ team. As hardware, network technology and operating systems and capabilities evolve so too will the software. This requires a dedicated effort from within ATLAS to support software and to keep the documentation up to date.

Cost Summary: (R)	Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
	1164	0	0	1164	945	220	0	0	661.5	0.0

MANPOWER (k$) SUMMARY:	FY 06 (hrs) (k$)	FY 07 (hrs) (k$)	FY 08 (hrs) (k$)	FY 09 (hrs) (k$)	FY 10 (hrs) (k$)	FY 11 (hrs) (k$)	FY 12 (hrs)
Computer Professional R	0	8694	8312	0	0	0	0
	0	583.409	518.688	0	0	0	0
Electrical Engineer R	0	680	352	0	0	0	0
	0	40.981	21.214	0	0	0	0

WBS Number: 3.6.1.3.1 **Description:** Programming Support - ANL

Institution : ANL-TDAQ **Contact** Not available

The TDAQ software is primarily written by the members of the TDAQ team. As hardware, network technology and operating systems and capabilities evolve so too will the software. This requires a dedicated effort from within ATLAS to support software and to keep the documentation up to date. This also includes some added level of support for the cosmic ray run in 2006.

Details of Estimate: In support of test beam operations ANL will provide approximately .1 CS and .1 EE in FY 04, .05 in FY05 (no TB) and 0.125 in FY 06 plus 2 trips

Cost Summary: (R)

Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
60	0	0	60	60	0	0	0	33.9	0.0

MANPOWER SUMMARY:

(k$)	FY 06 (hrs) (k$)	FY 07 (hrs) (k$)	FY 08 (hrs) (k$)	FY 09 (hrs) (k$)	FY 10 (hrs) (k$)	FY 11 (hrs) (k$)	FY 12 (hrs)
Computer Professional R	0	513	0	0	0	0	0
	0	59.696	0	0	0	0	0

CONTINGENCY FACTORS:

Risk				*Weight*			
Technical	C o s t	Schedule	Des i gn	Technical	C o s t	Schedule	Cont %
0	0	0	0	0	0	0	0

WBS Number: 3.6.1.3.2 **Description:** Programming Support - MSU

Institution : Michigan State University-tdaq **Contact** Not available

The TDAQ software is primarily written by the members of the TDAQ team. As hardware, network technology and operating systems and capabilities evolve so too will the software. This requires a dedicated effort from within ATLAS to support software and to keep the documentation up to date. This includes some additional support for the

In support of test beam operations MSU will provide approximately .1 CS and .1 EE in FY **Details of Estimate:**
04, .05 in FY05 (no TB) and 0.125 in 06 plus one trip.

Cost Summary: (R)	Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
	220	0	0	220	0	220	0	0	124.8	0.0

MANPOWER (k$) SUMMARY:	FY 06 (hrs) (k$)	FY 07 (hrs) (k$)	FY 08 (hrs) (k$)	FY 09 (hrs) (k$)	FY 10 (hrs) (k$)	FY 11 (hrs) (k$)	FY 12 (hrs)
Computer Professional R	0	1440	1320	0	0	0	0
	0	82.191	75.341	0	0	0	0
Electrical Engineer R	0	680	352	0	0	0	0
	0	40.981	21.214	0	0	0	0

CONTINGENCY FACTORS:	*Risk*				*Weight*			Cont %
	Technical	C o s t	Schedule	Des i gn	Technical	C o s t	Schedule	
	0	0	0	0	0	0	0	0

WBS Number: 3.6.1.3.3 **Description:** Programming Support - UCI

Institution : U. of California, Irvine **Contact** Not available

Cost Summary: (R)

Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
497	0	0	497	497	0	0	0	282.5	0.0

MANPOWER (k$) SUMMARY:

	FY 06 (hrs) (k$)	FY 07 (hrs) (k$)	FY 08 (hrs) (k$)	FY 09 (hrs) (k$)	FY 10 (hrs) (k$)	FY 11 (hrs) (k$)	FY 12 (hrs)
Computer Professional R	0	3921	4792	0	0	0	0
	0	223.753	273.457	0	0	0	0

CONTINGENCY FACTORS:

Risk				*Weight*			
Technical	C o s t	Schedule	Des i gn	Technical	C o s t	Schedule	Cont %
0	0	0	0	0	0	0	0

WBS Number: 3.6.1.3.4 **Description:** Programming Support - UW

Institution : University of Wisconsin, Madision-tdaq **Contact** Not available

Cost Summary: (R)

Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
388	0	0	388	388	0	0	0	220.3	0.0

MANPOWER SUMMARY:

(k$)	FY 06 (hrs) (k$)	FY 07 (hrs) (k$)	FY 08 (hrs) (k$)	FY 09 (hrs) (k$)	FY 10 (hrs) (k$)	FY 11 (hrs) (k$)	FY 12 (hrs)
Computer Professional R	0	2820	2200	0	0	0	0
	0	217.769	169.89	0	0	0	0

CONTINGENCY FACTORS:

Risk				*Weight*			
Technical	C o s t	Schedule	Des i gn	Technical	C o s t	Schedule	Cont %
0	0	0	0	0	0	0	0

WBS Number: 3.6.1.4 **Description:** Equipment

Institution : **Contact** Not available

Test beam and calibration activities will require some specialized TDAQ electronics. This equipment needs to be fabricated or purchased. The equipment in this category is equipment that is not subdetector specific and thus will be used in multiple test beam setups.

Details of Estimate: Equipment required to support test beam operations. This estimate is based on the level of spending required for this activity during FY01/FY02.

Cost Summary: (R)

Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
0	0	0	0	0	0	0	0	0.0	0.0

WBS Number: 3.6.1.4.1 **Description:** Equipment ANL

Institution : ANL-TDAQ **Contact** Not available

Test beam and calibration activities will require some specialized TDAQ electronics. This equipment needs to be fabricated or purchased. The equipment in this category is equipment that is not subdetector specific and thus will be used in multiple test beam setups.

Details of Estimate: Equipment required to support test beam operations. This estimate is based on the level of spending required for this activity during FY01/FY02.

Cost Summary: (R)

Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
0	0	0	0	0	0	0	0	0.0	0.0

CONTINGENCY FACTORS:

Risk				*Weight*			
Technical	C o s t	Schedule	Des i gn	Technical	C o s t	Schedule	Cont %
0	0	0	0	0	0	0	0

WBS Number: 3.6.1.4.2 **Description:** Equipment MSU

Institution : Michigan State University-tdaq **Contact** Not available

Test beam and calibration activities will require some specialized TDAQ electronics. This equipment needs to be fabricated or purchased. The equipment in this category is equipment that is not subdetector specific and thus will be used in multiple test beam setups.

Details of Estimate: Equipment required to support test beam operations. This estimate is based on the level of spending required for this activity during FY01/FY02.

Cost Summary: (R)

Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
0	0	0	0	0	0	0	0	0.0	0.0

CONTINGENCY FACTORS:

Risk				*Weight*			
Technical	C o s t	Schedule	Des i gn	Technical	C o s t	Schedule	Cont %
0	0	0	0	0	0	0	0

WBS Number: 3.6.2 **Description:** Operations

Institution : **Contact**

Operations shall include:
1. Updating the user documentation to include latest software and hardware descriptions and practices
2. Electronic and software integration of detector systems prior to data taking.
3. On-call support and maintenance of running detector TDAQ systems.
4. Archival storage of software and configuration information.
5. Support of reference and distribution systems for TDAQ software.

Cost Summary: (R)	Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
	6333	0	0	6333	6141	0	182	10	3489.1	705.9

MANPOWER (k$) SUMMARY:	FY 06 (hrs) (k$)	FY 07 (hrs) (k$)	FY 08 (hrs) (k$)	FY 09 (hrs) (k$)	FY 10 (hrs) (k$)	FY 11 (hrs) (k$)	FY 12 (hrs)
Computer Professional R	0	7977	12359	19118	14508	14508	14508
	0	549.819	887.035	1317.455	1062.009	1089.549	1117.898
Electrical Engineer R	0	320	757	0	0	0	0
	0	45.45	71.54	0	0	0	0

MATERIAL SUMMARY:	FY 06 (k$)	FY 07 (k$)	FY 08 (k$)	FY 09 (k$)	FY 10 (k$)	FY 11 (k$)	FY 12 (k$)
Other R	0.0	20.6	20.0	5.8	6.0	6.1	6.3
Travel R	0.0	31.5	25.2	0.0	6.4	10.3	14.5

WBS Number: 3.6.2.1 **Description:** Supervisor RoI Builder

Institution : **Contact** Not available

The Supervisor RoI Builder is the sole responsibility of US groups. Full support for the hardware, software and documentation will be required for this system from the time that this system is deployed

Cost Summary: (R)	Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
	1282	0	0	1282	1272	0	0	10	722.6	327.4

MANPOWER (k$) SUMMARY:	FY 06 (hrs) (k$)	FY 07 (hrs) (k$)	FY 08 (hrs) (k$)	FY 09 (hrs) (k$)	FY 10 (hrs) (k$)	FY 11 (hrs) (k$)	FY 12 (hrs)
Computer Professional R	0	866	1731	1760	1760	1760	1760
	0	100.773	201.43	210.13	215.598	221.189	226.944
Electrical Engineer R	0	320	405	0	0	0	0
	0	45.45	50.326	0	0	0	0

MATERIAL SUMMARY:	FY 06 (k$)	FY 07 (k$)	FY 08 (k$)	FY 09 (k$)	FY 10 (k$)	FY 11 (k$)	FY 12 (k$)
Other R	0.0	4.0	5.0	0.0	0.0	0.0	0.0

WBS Number: 3.6.2.1.1 **Description:** Supervisor RoI Builder - ANL

Institution : ANL-TDAQ **Contact** Not available

The Supervisor RoI Builder is the sole responsibility of US groups. Full support for the hardware, software and documentation will be required for this system from the time that this system is deployed

This includes 50% of a CS starting in ’06 with slightly more labor during initial beam startup **Details of Estimate:**
(06-08). It also includes material costs of $600 in ’04, 4k$ in ’05 and beyond.

Cost Summary: (R)	Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
	1277	0	0	1277	1267	0	0	10	719.6	327.2

MANPOWER (k$) SUMMARY:	FY 06 (hrs) (k$)	FY 07 (hrs) (k$)	FY 08 (hrs) (k$)	FY 09 (hrs) (k$)	FY 10 (hrs) (k$)	FY 11 (hrs) (k$)	FY 12 (hrs)
Computer Professional R	0	866	1731	1760	1760	1760	1760
	0	100.773	201.43	210.13	215.598	221.189	226.944
Electrical Engineer R	0	320	317	0	0	0	0
	0	45.45	45.023	0	0	0	0

MATERIAL SUMMARY:	FY 06 (k$)	FY 07 (k$)	FY 08 (k$)	FY 09 (k$)	FY 10 (k$)	FY 11 (k$)	FY 12 (k$)
Other R	0.0	4.0	5.0	0.0	0.0	0.0	0.0

CONTINGENCY FACTORS:	*Risk* Technical	*Risk* C o s t	*Risk* Schedule	*Risk* Des i gn	*Weight* Technical	*Weight* C o s t	*Weight* Schedule	Cont %
	0	0	0	0	0	0	0	0

WBS Number: 3.6.2.1.2 **Description:** Supervisor RoI Builder - MSU

Institution : Michigan State University-tdaq **Contact** Not available

The Supervisor RoI Builder is the sole responsibility of US groups. Full support for the hardware, software and documentation will be required for this system from the time that this system is deployed

Details of Estimate: This includes 50% of a EE starting in '06. It also includes material costs of $2000 in '05 to

Cost Summary: (R)

Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
5	0	0	5	5	0	0	0	3.0	0.1

MANPOWER SUMMARY:

	FY 06 (hrs) (k$)	FY 07 (hrs) (k$)	FY 08 (hrs) (k$)	FY 09 (hrs) (k$)	FY 10 (hrs) (k$)	FY 11 (hrs) (k$)	FY 12 (hrs)
Electrical Engineer R	0	0	88	0	0	0	0
	0	0	5.303	0	0	0	0

CONTINGENCY FACTORS:

Risk				*Weight*			
Technical	C o s t	Schedule	Des i gn	Technical	C o s t	Schedule	Cont %
0	0	0	0	0	0	0	0

WBS Number: 3.6.2.2 **Description:** Communications and Travel

Institution : **Contact** Not available

Consultation and effective interaction with the system designers will require both travel and phone or video conferencing. This area includes videoconferencing and travel in support of the detector TDAQ system during

Cost Summary: (R)	Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
	163	0	0	163	0	0	163	0	0.0	0.0

MATERIAL SUMMARY:	FY 06 (k$)	FY 07 (k$)	FY 08 (k$)	FY 09 (k$)	FY 10 (k$)	FY 11 (k$)	FY 12 (k$)
Other R	0.0	16.6	0.0	5.8	6.0	6.1	6.3
Travel R	0.0	31.5	25.2	0.0	6.4	10.3	14.5

WBS Number: 3.6.2.2.1 **Description:** Comm. and Travel - ANL

Institution : ANL-TDAQ **Contact** Not available

Consultation and effective interaction with the system designers will require both travel and phone or video conferencing. This area includes videoconferencing and travel in support of the detector TDAQ system during

Details of Estimate:

Travel (this represents 4 trips to CERN at 2.5k$ per trip) for the CS involved in support (in '07 a 30k residency cost is assumed).

Cost Summary: (R)

Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
12	0	0	12	0	0	12	0	0.0	0.0

MATERIAL SUMMARY:

	FY 06 (k$)	FY 07 (k$)	FY 08 (k$)	FY 09 (k$)	FY 10 (k$)	FY 11 (k$)	FY 12 (k$)
Travel R	0.0	2.1	6.4	0.0	0.0	0.0	0.0

CONTINGENCY FACTORS:

Risk				*Weight*			
Technical	C o s t	Schedule	Des i gn	Technical	C o s t	Schedule	Cont %
0	0	0	0	0	0	0	0

WBS Number: 3.6.2.2.2 **Description:** Comm. and Travel - MSU

Institution : Michigan State University-tdaq **Contact** Not available

Details of Estimate:

Consultation and effective interaction with the system designers will require both travel and phone or video conferencing. This area includes videoconferencing and travel in support of the detector TDAQ system during

Travel (this represents 4 trips to CERN at 2.5k$ per trip) for the EE involved (in '07 a 30k residency cost is assumed).

Cost Summary: (R)

Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
17	0	0	17	0	0	17	0	0.0	0.0

MATERIAL SUMMARY:

	FY 06 (k$)	FY 07 (k$)	FY 08 (k$)	FY 09 (k$)	FY 10 (k$)	FY 11 (k$)	FY 12 (k$)
Other R	0.0	6.2	0.0	0.0	0.0	0.0	0.0
Travel R	0.0	4.2	2.8	0.0	0.0	0.0	0.0

CONTINGENCY FACTORS:

Risk				*Weight*			
Technical	C o s t	Schedule	Des i gn	Technical	C o s t	Schedule	Cont %
0	0	0	0	0	0	0	0

WBS Number: 3.6.2.2.3 **Description:** Comm. and Travel - UCI

Institution : U. of California, Irvine **Contact** Not available

Details of Estimate:

Consultation and effective interaction with the system designers will require both travel and phone or video conferencing. This area includes videoconferencing and travel in support of the detector TDAQ system during

Travel (this represents 4 trips to CERN at 2.5k$ per trip) for the CS involved (in '07 a 30k residency cost is assumed).

Cost Summary: (R)

Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
115	0	0	115	0	0	115	0	0.0	0.0

MATERIAL SUMMARY:

	FY 06 (k$)	FY 07 (k$)	FY 08 (k$)	FY 09 (k$)	FY 10 (k$)	FY 11 (k$)	FY 12 (k$)
Other R	0.0	7.3	0.0	5.8	6.0	6.1	6.3
Travel R	0.0	16.8	11.8	0.0	6.4	10.3	14.5

CONTINGENCY FACTORS:

Risk				*Weight*			
Technical	C o s t	Schedule	Des i gn	Technical	C o s t	Schedule	Cont %
0	0	0	0	0	0	0	0

WBS Number: 3.6.2.2.4 **Description:** Comm. and Travel - UW

Institution : University of Wisconsin, Madision-tdaq **Contact** Not available

Details of Estimate:

Consultation and effective interaction with the system designers will require both travel and phone or video conferencing. This area includes videoconferencing and travel in support of the detector TDAQ system during

Travel (this represents 4 trips to CERN at 2.5k$ per trip) for the CS involved (in '07 a 30k residency cost is assumed)

Cost Summary: (R)

Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
19	0	0	19	0	0	19	0	0.0	0.0

MATERIAL SUMMARY:

	FY 06 (k$)	FY 07 (k$)	FY 08 (k$)	FY 09 (k$)	FY 10 (k$)	FY 11 (k$)	FY 12 (k$)
Other R	0.0	3.1	0.0	0.0	0.0	0.0	0.0
Travel R	0.0	8.4	4.2	0.0	0.0	0.0	0.0

CONTINGENCY FACTORS:

Risk				*Weight*			
Technical	C o s t	Schedule	Des i gn	Technical	C o s t	Schedule	Cont %
0	0	0	0	0	0	0	0

WBS Number: 3.6.2.3 **Description:** Programming Support

Institution : **Contact** Not available

The TDAQ software is primarily written by the members of the TDAQ team. As hardware, network technology and operating systems and capabilities evolve so too will the software. This requires a dedicated effort from within ATLAS to support software and to keep the documentation up to date.

Cost Summary: (R)	Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
	4888	0	0	4888	4869	0	19	0	2766.4	378.6

MANPOWER (k$) SUMMARY:	FY 06 (hrs) (k$)	FY 07 (hrs) (k$)	FY 08 (hrs) (k$)	FY 09 (hrs) (k$)	FY 10 (hrs) (k$)	FY 11 (hrs) (k$)	FY 12 (hrs)
Computer Professional R	0	7111	10628	17358	12748	12748	12748
	0	449.046	685.605	1107.325	846.411	868.36	890.954
Electrical Engineer R	0	0	352	0	0	0	0
	0	0	21.214	0	0	0	0

MATERIAL SUMMARY:	FY 06 (k$)	FY 07 (k$)	FY 08 (k$)	FY 09 (k$)	FY 10 (k$)	FY 11 (k$)	FY 12 (k$)
Other R	0.0	0.0	15.0	0.0	0.0	0.0	0.0

WBS Number: 3.6.2.3.1 **Description:** Programming Support - ANL

Institution : ANL-TDAQ **Contact** Not available

The TDAQ software is primarily written by the members of the TDAQ team. As hardware, network technology and operating systems and capabilities evolve so too will the software. This requires a dedicated effort from within ATLAS to support software and to keep the documentation up to date.

The support for the LVL2 software will involve 50% of a CS per year. A slightly higher level **Details of Estimate:**
is required before and during initial running.

Base & infrastructure
1 Post Doc for programming support in 2006 to 2012.

Cost Summary: (R)	Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
	0	0	0	0	0	0	0	0	0.0	49.0

CONTINGENCY FACTORS:	*Risk*				*Weight*			
	Technical	C o s t	Schedule	Des i gn	Technical	C o s t	Schedule	Cont %
	0	0	0	0	0	0	0	0

WBS Number: 3.6.2.3.2 **Description:** Programming Support - MSU

Institution : Michigan State University-tdaq **Contact** Not available

The TDAQ software is primarily written by the members of the TDAQ team. As hardware, network technology and operating systems and capabilities evolve so too will the software. This requires a dedicated effort from within ATLAS to support software and to keep the documentation up to date.

The support for the LVL2 software will involve 50% of a CS per year. A slightly higher level is required before and during initial running.

Details of Estimate:

Cost Summary: (R)

Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
828	0	0	828	822	0	6	0	466.9	33.3

MANPOWER (k$) SUMMARY:

	FY 06 (hrs) (k$)	FY 07 (hrs) (k$)	FY 08 (hrs) (k$)	FY 09 (hrs) (k$)	FY 10 (hrs) (k$)	FY 11 (hrs) (k$)	FY 12 (hrs) (k$)
Computer Professional R	0	1436	1325	2640	2640	2640	2640
	0	81.962	75.627	154.6	158.624	162.737	166.971
Electrical Engineer R	0	0	352	0	0	0	0
	0	0	21.214	0	0	0	0

MATERIAL SUMMARY:

	FY 06 (k$)	FY 07 (k$)	FY 08 (k$)	FY 09 (k$)	FY 10 (k$)	FY 11 (k$)	FY 12 (k$)
Other R	0.0	0.0	5.0	0.0	0.0	0.0	0.0

CONTINGENCY FACTORS:

Risk				*Weight*			
Technical	Cost	Schedule	Design	Technical	Cost	Schedule	Cont %
0	0	0	0	0	0	0	0

WBS Number: 3.6.2.3.3 **Description:** Programming Support - UCI

Institution : U. of California, Irvine **Contact** Not available

The TDAQ software is primarily written by the members of the TDAQ team. As hardware, network technology and operating systems and capabilities evolve so too will the software. This requires a dedicated effort from within ATLAS to support software and to keep the documentation up to date.

The support for the LVL2 software will involve 50% of a CS per year. A slightly higher level **Details of Estimate:** is required before and during initial running.

Cost Summary: (R)

Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
2286	0	0	2286	2280	0	6	0	1295.3	236.6

MANPOWER (k$) SUMMARY:

	FY 06 (hrs) (k$)	FY 07 (hrs) (k$)	FY 08 (hrs) (k$)	FY 09 (hrs) (k$)	FY 10 (hrs) (k$)	FY 11 (hrs) (k$)	FY 12 (hrs) (k$)
Computer Professional R	0	3530	5379	10318	6311	6311	6311
	0	201.441	306.955	604.11	379.119	388.951	399.071

MATERIAL SUMMARY:

	FY 06 (k$)	FY 07 (k$)	FY 08 (k$)	FY 09 (k$)	FY 10 (k$)	FY 11 (k$)	FY 12 (k$)
Other R	0.0	0.0	5.0	0.0	0.0	0.0	0.0

CONTINGENCY FACTORS:

Risk				*Weight*			
Technical	Cost	Schedule	Design	Technical	Cost	Schedule	Cont %
0	0	0	0	0	0	0	0

WBS Number: 3.6.2.3.4 **Description:** Programming Support - UW

Institution : University of Wisconsin, Madision-tdaq **Contact** Not available

The TDAQ software is primarily written by the members of the TDAQ team. As hardware, network technology and operating systems and capabilities evolve so too will the software. This requires a dedicated effort from within ATLAS to support software and to keep the documentation up to date.

The support for the LVL2 software will involve 50% of a CS per year. A slightly higher level **Details of Estimate:** is required before and during initial running.

Cost Summary: (R)	Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
	1774	0	0	1774	1768	0	6	0	1004.3	59.7

MANPOWER SUMMARY: (k$)	FY 06 (hrs) (k$)	FY 07 (hrs) (k$)	FY 08 (hrs) (k$)	FY 09 (hrs) (k$)	FY 10 (hrs) (k$)	FY 11 (hrs) (k$)	FY 12 (hrs) (k$)
Computer Professional R	0	2145	3924	4400	3797	3797	3797
	0	165.643	303.023	348.615	308.668	316.672	324.912

MATERIAL SUMMARY:	FY 06 (k$)	FY 07 (k$)	FY 08 (k$)	FY 09 (k$)	FY 10 (k$)	FY 11 (k$)	FY 12 (k$)
Other R	0.0	0.0	5.0	0.0	0.0	0.0	0.0

CONTINGENCY FACTORS:	*Risk* Technical	Cost	Schedule	Design	*Weight* Technical	Cost	Schedule	Cont %
	0	0	0	0	0	0	0	0

WBS Number: 3.6.2.4 **Description:** Test facilities

Institution : **Contact** Not available

TDAQ hardware used in the ATLAS experiment will be need to be checked and evaluated in a test lab periodically. Such a facility will require computers, network equipment, etc. This equipment needs to be supported and replaced on an as needed basis. This item includes support for such a test lab and necessary equipment

Cost Summary: (R)	Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
	0	0	0	0	0	0	0	0	0.0	0.0

WBS Number: 3.6.2.4.1 **Description:** Test Facilities - ANL

Institution : ANL-TDAQ **Contact** Not available

TDAQ hardware used in the ATLAS experiment will need to be checked and evaluated in a test lab periodically. Such a facility will require computers, network equipment, etc. This equipment needs to be supported and replaced on an as needed basis. This item includes support for such a test lab and necessary equipment

Details of Estimate:

The ATLAS wide cost for support of test facilities is expected to be 60k$ in 2005 and beyond. ANL will need to support some additional equipment in support of the SRB system which is the sole responsibility of the US groups.

Cost Summary: (R)

Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
0	0	0	0	0	0	0	0	0.0	0.0

CONTINGENCY FACTORS:

Risk				*Weight*			
Technical	C o s t	Schedule	Des i gn	Technical	C o s t	Schedule	Cont %
0	0	0	0	0	0	0	0

WBS Number: 3.6.2.4.2 **Description:** Test Facilities - MSU

Institution : Michigan State University-tdaq **Contact** Not available

TDAQ hardware used in the ATLAS experiment will need to be checked and evaluated in a test lab periodically. Such a facility will require computers, network equipment, etc. This equipment needs to be supported and replaced on an as needed basis. This item includes support for such a test lab and necessary equipment

Details of Estimate:

The ATLAS wide cost for support of test facilities is expected to be 60k$ in 2005 and beyond. MSU will provide some hardware in support of the SRB which is the sole responsibility of US groups.

Cost Summary: (R)

Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
0	0	0	0	0	0	0	0	0.0	0.0

CONTINGENCY FACTORS:

Risk				*Weight*			
Technical	C o s t	Schedule	Des i gn	Technical	C o s t	Schedule	Cont %
0	0	0	0	0	0	0	0

WBS Number: 3.6.3 **Description:** CERN Common Costs

Institution : BNL-common **Contact** Not available

CERN Common costs for TDAQ

Details of Estimate: The costs for Maintenance/Repairs, Operations, and Consumables at a US Share of 15.9% are included in the common costs in WBS3.7

U.S. ATLAS % share of activity: 15.90%

Cost Summary: (R)

Base Cost (k$)	Cont Cost (k$)	Cont %	Total Cost (k$)	EDIA Labor (k$)	Mfg Labor (k$)	EDIA Matls (k$)	Mfg Matls (k$)	FTEs R	FTEs Other
0	0	0	0	0	0	0	0	0.0	0.0

CONTINGENCY FACTORS:

Risk				*Weight*			
Technical	C o s t	Schedule	Des i gn	Technical	C o s t	Schedule	Cont %
0	0	0	0	0	0	0	0