ID	PBS	PBS-Name	Task Name	Start	Finish
1	**1**	**OC**	**Common items**	**Tue 1/2/00**	**Wed 30/6/04**
2	1	OC	Prepare software agreements	Tue 1/2/00	Fri 30/6/00

ID	*Successor Name*	*Type*	*Lag*
3	*Conclude software agreements*	*FS*	*0 days*

Notes

Discuss and decide on general policy, where Software Agreements are applicable etc; provide standard blueprint text

3	1	OC	Conclude software agreements	Tue 4/7/00	Fri 30/3/01

ID	*Predecessor Name*	*Type*	*Lag*
2	*Prepare software agreements*	*FS*	*0 days*

Notes

Discuss and conclude the various Software Agreements to be put in place

4	1.4	OC0	Perform Mock Data Challenge 0	Thu 1/11/01	Wed 12/12/01

Notes

The "Zero" Data Challenge comprises a 'continuity' test through the software chain, including trigger simulation. The "Zero" implies a relatively small number of events, e.g. 20k Z+Jet, or similar. Of course the challenge includes read/write of data to database.

5			First major cycle of OO software completed	Fri 21/12/01	Fri 21/12/01
6	1.5	OC1	Perform Mock Data Challenge 1 ('0.1%')	Wed 2/1/02	Tue 30/7/02

Notes

MDC1 is thought of as 0.1% of a year's raw data. (i.e. about a 1TB)
The MDC1 should of course be based on G4 simulation, and some
(but not all!) PTDR plots should be re-checked.
The hope would be that a 'signal' buried in the MDC 1 data can be found
in the analysis. Unlikely to have all 'bells and whistles' of calibration etc.,
but some claibration software machinery should be exercised.
Hardware resources for MDC1 are not likely to be a problem. Analysis will surely not enjoy full-blown GRID features.....

7	1.2	OCT	Write Computing TDR	Wed 1/5/02	Tue 26/11/02

Notes

Scope of Computing TDR (CTDR) covers both software and hardware. I suppose idea is that it TDR should demonstrate sufficient progress and rate of progress that Funding Agencies will feel happy to see major computing expenditure (hardware and more software expertise) start...during 2003.
The precise timing of the CTDR is at least partyl 'political'. US Funding
Agencies have suggested wanting it not later than 2002. CMS plan theirs
for early 2002.

8	1	OC	Computing MOUs	Mon 2/7/01	Fri 21/12/01

Notes

It is unclear whether the Compuutting MOUs will require the Computing TDR; for the purposes of this planning and in line with the current state of discussion in the CERN review of LHC computing, we assume that the MOUs will precede the Computing TDR. However, this is still being discussed by the CERN review of LHC computing, and subject to change. If the MOU is to follow the TDR, interim MOUs to precede the TDR may be considered.

ID	PBS	PBS-Name	Task Name	Start	Finish
9	1.6	OC2	Perform Mock data Challenge 2 ('10%')	Thu 2/1/03	Wed 10/9/03
	Notes				
	MDC2 comes after CTDR. Its scope is much larger than MDC1, both in quantity of data (maybe 10% of 1 PB), and in 'style': one wants to check out the ATLAS computing model a la GRID. Actually, it may make more sense not to scale all 2005 requirements by 10%, but to have a number of interconnects ("boxes") which is more like 50%, while the CPU power and the disk space could be much smaller. MDC2 could use hardware which is shared among the LHC experiments.				
10			Second major cycle of OO software completed	Mon 22/12/03	Mon 22/12/03
11	1.3	OCP	"Physics TDR prime"	Mon 5/1/04	Wed 30/6/04
12			T/DAQ TDR	Tue 1/5/01	Mon 17/9/01
	Notes				
	The T/DAQ TDR is important for off-line software in that the Event Filter would like to use latest recon. software in their EF simulation for this TDR. Possible scope: "electron slice". So the timing of this TDR sets some important constraints for the software. Assumption is T/DAQ TDR to LHCC for October '01.				
13			ATLAS Simulation workshop	Tue 24/10/00	Fri 27/10/00
	Notes				
	The aim of this workshop(Oct. 2000) is to assess Geant4 'physics' processes for ATLAS, based on comparisons to test-beam (and G3). The G4 information may come from 'stand-alone' G4 studies, rather than G4 integrated in framework, which we probably don't have in time.				
14			ATLAS Physics workshop	Tue 24/4/01	Mon 30/4/01
	Notes				
	This is the next in a series of ATLAS Physics w/shops. Aim is to have results from new (C++) version of ATLFAST available for this w/shop. Date of w/shop not yet decided for certain.				
15	**2**	**OP**	**Physics part**	**Thu 1/7/99**	**Fri 21/12/01**
16	2.1	OPR	Requirements	Thu 2/3/00	Fri 21/12/01
	Notes				
	To be elaborated on				
17	2.2	OPV	Benchmarking and physics verification	Thu 2/3/00	Fri 21/12/01
18	**2.3**	**OPS**	**Simulation**	**Thu 1/7/99**	**Fri 21/12/01**
19	2.3.1	OPSG	Event Generators	Thu 2/3/00	Fri 21/12/01
	Notes				
	To be elaborated on				
20	**2.3.2**	**OPSF**	**Fast Detector Simulation: Requrements and validatio**	**Wed 1/3/00**	**Fri 29/6/01**
	Notes				
	To be elaborated on				

ID	PBS	PBS-Name	Task Name	Start	Finish
21	2.3.2	OPSF	Requirements for OO version	Wed 1/3/00	Wed 31/5/00
22	2.3.2	OPSF	Fast simulation fully validated	Fri 29/6/01	Fri 29/6/01
	Notes				
	This refers to the new OO/C++ version.				
23	**2.3.3**	**OPSV**	**Geant4 verification**	**Thu 1/7/99**	**Fri 21/12/01**
	Notes				
	To be elaborated on				
24	2.3.3	OPSV	Geant 4 physics studies	Thu 1/7/99	Fri 21/12/01
	Notes				
	This refers to the tuning/checking of Geant 4 simulation of ATLAS detector response. This will go on for a long time. But one can see several stages: 1) 'stand-alone' G4 studies, using 99 and 00 test-beam data for the Oct 2000 Sim w/shop. 2) Further studies of this type for the ATLAS Phys. w/shop in early 2001. 3) G4 studies, from within new Framework. Dario Barberis (for ID) sees calendar 2000 for sorting out the em problems on dEdx and TR, and work on hadronic interactions in ID extending through 2001. For the muon system the 99 test-beam data (X5) is not well described by G3, but is described by FLUKA. G4 studies awaited with interest.				
25	2.3.3	OPSV	First G4 evaluation results	Tue 24/10/00	Tue 24/10/00
	Notes				
	To be reported to Simulation Workshop				
26	2.3.3	OPSV	More G4 evaluation results	Tue 24/4/01	Tue 24/4/01
	Notes				
	To be presented to Physics Workshop				
27	2.3.3	OPSV	Geant 4 physics fully validated	Fri 21/12/01	Fri 21/12/01
	Notes				
	This means that we trust Geant 4 at least as much as Geant 3, such that we can abandon the latter.				
28	**2.3.4**	**OPSP**	**Shower parametrisation**	**Wed 1/3/00**	**Fri 21/12/01**
29	2.3.4	OPSP	Shower parametrisation studies	Wed 1/3/00	Tue 26/9/00
	Notes				
	Idea is to start a small group to examine feasibility of shower parametrisation. Group should report to Oct 2000 Sim. w/shop.				
30	2.3.4	OPSP	Shower parametrisation fully validated	Fri 21/12/01	Fri 21/12/01
31	**2.4**	**OPC**	**Combined reconstruction: Requirements and validati**	**Wed 1/3/00**	**Fri 21/12/01**

ID	PBS	PBS-Name	Task Name	Start	Finish
32	2.4.1	OPCE	Electrons and photons	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates				
33	2.4.2	OPCJ	Jets and missing Et	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates				
34	2.4.3	OPCM	Muons	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates				
35	2.4.4	OPCS	Secondary vertices	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates				
36	2.4	OPC	OO/C++ reconstruction fully validated	Fri 21/12/01	Fri 21/12/01
37	**3**	**OS**	**Atlas-specific software**	**Fri 1/1/99**	**Mon 1/4/02**
38	**3.1**	**OSC**	**Common items**	**Fri 1/1/99**	**Mon 1/4/02**
39	**3.1.1**	**OSCA**	**Architecture**	**Mon 28/2/00**	**Mon 28/2/00**
40	3.1.1	OSCA	Architecture team in place	Mon 28/2/00	Mon 28/2/00
41	**3.1.2**	**OSCF**	**Framework**	**Mon 3/1/00**	**Mon 1/4/02**
42	3.1.2	OSCF	Pre-alpha prototype	Mon 3/1/00	Tue 9/5/00
	Notes				
	This is the 'May 2000' prototype. Following ATF ideas on 'components', the idea is to learn about GAUDI components and their possible use for ATLAS. Functionality: - Read Physics TDR Data (must) - Integrated Event Display (must) - Execute sequence of multiple user modules (must) - Dynamic loading of user modules (should) - Sequences with branches/filters (should) - Rudimentary interactive user interface (may) - Limited data persistence - HBOOK (may) - One Event Generator				
43	3.1.2	OSCF	USDP-based design	Wed 1/3/00	Tue 20/6/00
	ID	*Successor Name*	*Type*	*Lag*	
	46	*Build alpha version*	*FS*	*0 days*	
	Notes				
	This is the architectural design based on use-cases, requirements, etc. The methodology is USDP-based, or adapted. The 'components' approach and this USDP-based approach are complementary. They come together during the alpha review process, and are merged into				

ID	PBS	PBS-Name	Task Name	Start	Finish
"USDP-based design" continued					
	Notes				
	a single development line thereafter.				
44	3.1.2	OSCF	Event Data Model workshop	Wed 31/5/00	Wed 31/5/00
45	3.1.2	OSCF	Review May prototype and alpha strategy	Fri 16/6/00	Thu 13/7/00
	Notes				
	This is the review of architecture design at which what has been learned from study of Gaudi components and the ideas emerging from the USDP-based design are drawn together for subsequent development. Of course this is NOT the end of the design process, merely the end of the first iteration!				
46	3.1.2	OSCF	Build alpha version	Fri 30/6/00	Fri 29/9/00
	ID	*Predecessor Name*	*Type*	*Lag*	
	43	*USDP-based design*	*FS*	*0 days*	
	Notes				
	This is the "Sept. 2000" version, to be released in September. It will include feedback from both experience of the May prototype, plus input from the USDP-based approach. From here on there is only a single development line! This Sept. release includes: - Merge of USDP and Prototype - Preliminary Event Data Model - Preliminary reconstruction objects - Preliminary database integration - Fast Simulation - Multiple Event Generators - Limited physics analysis integration				
47	3.1.2	OSCF	Build beta (TDAQ/TDR) version	Mon 2/10/00	Fri 29/12/00
	Notes				
	This is the Dec. 2000 version, incorporating features beyond Sept. release which are VITAL for production for T/DAQ TDR. The open issue here is what Geant functionality is needed? e.g. read G3 events, newly simulated from within framework: far from clear that that is feasible/required on this time-scale. What about G4 events? It MUST be an aim to have SOME G4 simulation in the T/DAQ TDR. This version will fully integrate the database access.				
48	3.1.2	OSCF	Build gamma version	Tue 2/1/01	Mon 30/4/01
	Notes				
	Functionality includes - Geant4 integration - Bookkeeping, history				
49	3.1.2	OSCF	Review design of full function release	Mon 16/7/01	Fri 27/7/01
	Notes				
	At this stage the design of the full-functionality version should be complete, and this should now be reviewed prior to producing this version.				
50	3.1.2	OSCF	Release of fully-functional version	Mon 1/10/01	Mon 1/10/01
	Notes				
	This version is called "collocated"				

ID	PBS	PBS-Name	Task Name	Start	Finish
51	3.1.2	OSCF	Release of Production version V1	Mon 1/4/02	Mon 1/4/02
52	**3.1.3**	**OSCB**	**Data base**	**Fri 1/1/99**	**Fri 29/6/01**
	Notes				
	Closely correlated with Event and Detector Description				
53	3.1.3	OSCB	1 TByte database prototype	Fri 1/1/99	Fri 1/1/99
	Notes				
	This is the famous "1TByte milestone" which was an ATLAS (and RD45?) milestone. In any case, it has been MET!				
54	**3.1.3**	**OSCB**	**Infrastructure**	**Mon 3/4/00**	**Fri 22/12/00**
	Notes				
	Infrastructure for data base creation, population, distribution, and development				
55	3.1.3	OSCB	Support database creation	Mon 3/4/00	Fri 30/6/00
	Notes				
	SRT based support for database creation with reference schemata				
56	3.1.3	OSCB	Support distribution to secondary federations	Mon 3/7/00	Thu 31/8/00
57	3.1.3	OSCB	DB data access via control framework	Fri 1/9/00	Fri 29/9/00
58	3.1.3	OSCB	Support distribution via grids	Mon 2/10/00	Tue 31/10/00
	Notes				
	Grid-enabled support for database distribution to secondary federations				
59	3.1.3	OSCB	Connect to replica management	Wed 1/11/00	Fri 22/12/00
	Notes				
	Connections to grid-based replica management for data replicated at remote sites				
60	3.1.3	OSCB	Review data base experience	Fri 22/12/00	Fri 22/12/00
	Notes				
	This is a follow-up of the data base session of the February 2000 SW workshop. It implies a re-assessment of the Atlas datastore requirements.				
61	3.1.3	OSCB	Decide on data base product	Fri 29/6/01	Fri 29/6/01
	Notes				
	An old milestone, but I think still a valid one.				
62	**3.1.4**	**OSCE**	**Event**	**Thu 1/7/99**	**Thu 31/8/00**
	Notes				
	Closely correlated with Data base and Detector description. Random start and finish dates as yet.				

ID	PBS	PBS-Name	Task Name	Start	Finish
63	3.1.4	OSCE	Common aspects and strategy	Wed 1/3/00	Fri 30/6/00
	Notes				
	Event architecture, collections of sub-event entities (hits, tracks), event collections, associations,…				
64	3.1.4	OSCE	Raw data model (Atlas at LHC)	Wed 1/3/00	Fri 30/6/00
	Notes				
	Overlaps with simulated digits				
65	**3.1.4**	**OSCE**	**Simulated data**	**Wed 1/3/00**	**Mon 31/7/00**
	Notes				
	Overlaps with raw data				
66	3.1.4	OSCE	Model for digits	Wed 1/3/00	Fri 30/6/00
	Notes				
	Mostly done				
67	3.1.4	OSCE	Model for hits	Wed 1/3/00	Fri 30/6/00
	Notes				
	Urgent				
68	3.1.4	OSCE	Model for other simulation information	Wed 1/3/00	Fri 30/6/00
69	3.1.4	OSCE	Digits from Geant3 Zebra tapes	Wed 1/3/00	Fri 28/4/00
	Notes				
	Mostly done				
70	3.8.2	OSSD	Geant3 DIGI data available	Fri 28/4/00	Fri 28/4/00
	Notes				
	This is the completion of the task of making the PTDR G3 DIGI information available in the C++ f/work. (PASO, etc.). The only DIGI information which might come a little later is the Muon CSC info.				
71	3.1.4	OSCE	Hits from Geant3 Zebra tapes	Wed 1/3/00	Mon 31/7/00
	Notes				
	Urgent				
72	3.8.2	OSSD	Geant3 HIT data available	Mon 31/7/00	Mon 31/7/00
	Notes				
	This refers also to the G3 PTDR events, but not the Geant 'HIT' data. Access to this is needed for e.g. 'pile-up' studies. However, simple access to the HIT data is not all that is required, the 'transformation' routines to turn HIT into DIGI is also needed, and this is implied by this task.				
73	3.1.4	OSCE	Other information from Geant3 Zebra tapes	Wed 1/3/00	Fri 30/6/00
74	3.1.4	OSCE	Digits from Geant4	Wed 1/3/00	Fri 30/6/00
	Notes				
	Expected to be a trivial mapping				

ID	PBS	PBS-Name	Task Name	Start	Finish
75	3.1.4	OSCE	Hits from Geant4	Wed 1/3/00	Fri 30/6/00
	Notes				
	Expected to be a trivial mapping				
76	3.1.4	OSCE	Other information from Geant4	Wed 1/3/00	Fri 30/6/00
	Notes				
	Expected to be a trivial mapping				
77	3.1.4	OSCE	Pile-up handling	Wed 1/3/00	Fri 30/6/00
78	**3.1.4**	**OSCE**	**Test beam data**	**Thu 1/7/99**	**Thu 31/8/00**
79	3.1.4	OSCE	Pilot project with Objectivity/DB	Thu 1/7/99	Fri 30/7/99
80	3.1.4	OSCE	Put RD45 calibration infrastructure in place	Mon 3/7/00	Mon 31/7/00
81	3.1.4	OSCE	Naming, user data areas	Tue 1/8/00	Thu 31/8/00
	Notes				
	RD45 naming, support for user data areas in shared federations				
82	3.1.4	OSCE	Inner Detector	Wed 1/3/00	Fri 30/6/00
83	3.1.4	OSCE	Liquid Argon Calorimeter	Wed 1/3/00	Fri 30/6/00
84	3.1.4	OSCE	Tile Calorimeter	Wed 1/3/00	Fri 30/6/00
85	3.1.4	OSCE	Muon Spectrometer	Wed 1/3/00	Fri 30/6/00
86	3.1.4	OSCE	Reconstructed data	Wed 1/3/00	Fri 30/6/00
87	**3.1.5**	**OSCD**	**Detector description**	**Fri 1/10/99**	**Mon 31/7/00**
	Notes				
	Closely correlated with Data base and Event				
88	3.1.5	OSCD	Complete version1 of IDentifier scheme	Mon 21/2/00	Fri 28/4/00
	Notes				
	The IDentifier scheme is a number which identifies, for a given sub-detector, a read-out channel. Used for navigation to access raw data. The idea is to make the ID numbers 'natural' in the sense that the number is meaningful to the detector community. (e.g. increasing ID is increasing phi,...) As of Feb 2000, this is largely done, but waiting for LAr and FEC.				
89	3.1.5	OSCD	Revise identifier utilities	Mon 3/4/00	Mon 31/7/00
	Notes				
	Aim: revised identifier utility classes and utilities. Status: first version done in 1998. Revision in progress.				

ID	PBS	PBS-Name	Task Name	Start	Finish
90	3.1.5	OSCD	Develop XML machinery for Det. Descr.	Fri 1/10/99	Thu 27/4/00
	Notes		This task refers to the development of the XML design and code for Detector Description. It runs in parallel with, but is distinct from, the separate tasks of describing each detector (e.g. Pixel, SCT) in XML. Comprises in particular an XML DTD for geometry, and one for materials, which exist and are currently being revised. The DTD for materials is evolving to something in common with LHCb.		
91	3.1.6	OSCC	Calibration infrastructure	Tue 4/7/00	Fri 22/12/00
92	**3.1.7**	**OSCG**	**Graphics**	**Mon 3/1/00**	**Fri 21/12/01**
	Notes		Incomplete, random start/finish dates		
93	**3.1.7**	**OSCG**	**Framework**	**Wed 1/3/00**	**Fri 21/12/01**
	Notes		Graphics Framework will be implemented in Java during this year. C++ version will remain functional at the current level. New functionality will be provided only in the Java version. Transparent bridge between Reconstruction (in C++) and Graphics (in Java) will be provided. Further migration to Java will be decided at the end of this year		
94	3.1.7	OSCG	Maintain C++ framework	Wed 1/3/00	Fri 21/12/01
95	3.1.7	OSCG	Java Framework functional	Wed 31/5/00	Wed 31/5/00
96	3.1.7	OSCG	Java framework: transparent access to C++ objects	Fri 29/9/00	Fri 29/9/00
97	3.1.7	OSCG	Java framework fully functional	Fri 22/12/00	Fri 22/12/00
98	**3.1.7**	**OSCG**	**Atlantis**	**Wed 1/3/00**	**Fri 21/12/01**
	Notes		Atlantis will be re-written during this year and merged with WIRED next year (some changes to WIRED may be required). Both programs will be directly interfaced with the Framework.		
99	3.1.7	OSCG	Migrate to Java, interface w/ framework	Wed 1/3/00	Fri 22/12/00
100	3.1.7	OSCG	Merge with Wired	Wed 3/1/01	Fri 21/12/01
101	**3.1.7**	**OSCG**	**Wired**	**Tue 2/5/00**	**Fri 29/9/00**
	Notes		Atlantis will be re-written during this year and merged with WIRED next year (some changes to WIRED may be required). Both programs will be directly interfaced with the Framework.		
102	3.1.7	OSCG	Demonstrate interface	Tue 2/5/00	Wed 31/5/00
	Notes		Study the feasibility of interfacing Wired with the framework		
103	3.1.7	OSCG	Full interface	Fri 29/9/00	Fri 29/9/00
104	**3.1.7**	**OSCG**	**AVRML and GraXML**	**Wed 1/3/00**	**Fri 29/9/00**
	Notes		Depending on policy decisions, AVRML+GraXML will evolve into full 3D (probably integrated in WIRED-Atlantis) with-or-without interface to PersInt.		

ID	PBS	PBS-Name	Task Name	Start	Finish
105	3.1.7	OSCG	Migrate to Java3D/VRML2/X3D	Wed 1/3/00	Fri 29/9/00
106	3.1.7	OSCG	Persint	Mon 3/1/00	Fri 22/12/00
	Notes				
	Random stand and end dates				
107	**3.1.7**	**OSCG**	**Aravis**	**Tue 2/5/00**	**Fri 22/12/00**
	Notes				
	Will stay in C++ as long as the C++ framework exists, will be migrated to Java once reconstruction written in Java				
108	3.1.7	OSCG	Migrate to Qt	Tue 2/5/00	Fri 22/12/00
109	**3.1.7**	**OSCG**	**Statistics**	**Tue 2/5/00**	**Fri 29/9/00**
	Notes				
	Current Scenes (HBookTuple, AHTL) will be kept in C++, new Scenes will be introduced in Java. Those new Scenes will be based on AIDA and JAS interface.				
110	3.1.7	OSCG	Introduce AIDA scene	Tue 2/5/00	Fri 29/9/00
	Notes				
	includes interfacing to JAS				
111	**3.1.7**	**OSCG**	**Other scenes**	**Wed 1/3/00**	**Wed 31/5/00**
112	3.1.7	OSCG	Implement Text and XML in Java	Wed 1/3/00	Wed 31/5/00
113	**3.1.7**	**OSCG**	**Data**	**Wed 1/3/00**	**Fri 21/12/01**
	Notes				
	During this year, all SubSystem' standard objects will be interfaced in their C++ versions (depending on SubSystems status and policy). Next year, graphics implementation will be migrated to Java, the process will be transparent to C++ users. Maintenance and further development of graphical representations will be done by the developers from SubSystems.				
114	3.1.7	OSCG	Complete C++ versions of graphics objects	Wed 1/3/00	Fri 22/12/00
115	3.1.7	OSCG	Migrate graphical representations to Java	Wed 3/1/01	Fri 21/12/01
116	**3.1.8**	**OSCT**	**Analysis tools**	**Fri 19/2/99**	**Fri 29/6/01**
117	3.1.8	OSCT	Define interim requirements	Fri 19/2/99	Thu 30/9/99
118	3.1.8	OSCT	Define relationship with framework	Mon 2/4/01	Fri 29/6/01
	Notes				
	Should analysis tool(s) run from within framework or independently? Which parts of the data base should it access?				
119	**3.2**	**OSI**	**Inner Detector software**	**Mon 4/1/99**	**Fri 21/12/01**
120	3.2.1	OSIC	Common items	Thu 2/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates				
121	**3.2.2**	**OSIS**	**Simulation**	**Mon 4/1/99**	**Fri 21/12/01**

ID	PBS	PBS-Name	Task Name	Start	Finish
122	3.2.2	OSIS	TRT test beam simulation in G4	Mon 4/1/99	Thu 31/8/00
	Notes				
	Geometry exists, digitisation being started now.				
123	3.2.2	OSIS	Pixel test beam simulation in G4	Wed 1/9/99	Thu 31/8/00
	Notes				
	Geometry exists, digitisation being started now.				
124	3.2.2	OSIS	Global ID geometry in G4	Mon 3/7/00	Thu 21/12/00
	Notes				
	This assumes that at least a prototype G4 infrastructure will exist in the new framework by next July; it should contain the definitions of mother volumes and envelopes for each subdetector, plus general services (materials, particles, I/O, PhysicsList, etc.). Current idea is to start from the G4Builder and to optimise it for each subdetector.				
125	3.2.2	OSIS	ID in G4	Fri 22/12/00	Fri 22/12/00
	Notes				
	Geometry, tracking, hits, digits.				
126	3.2.2	OSIS	Checks of G4 EM physics	Mon 2/8/99	Thu 21/12/00
	Notes				
	Mainly dE/dx and Transition Radiation. Several models in G4 to be compared to test beam data. Tuning may be needed as models have many parameters.				
127	3.2.2	OSIS	Checks of G4 hadronic physics	Wed 1/3/00	Thu 20/12/01
	Notes				
	Mainly interactions in silicon detectors and detector response in case of interactions. Comparisons to test beam data.				
128	3.2.2	OSIS	Current ID geometry in G3	Mon 3/4/00	Wed 31/5/00
	Notes				
	Needed as "Physics TDR" geometry is 3 years old.				
129	3.2.2	OSIS	Tests of Geant 4 versus Geant 3	Wed 3/1/01	Fri 21/12/01
130	**3.2.3**	**OSIR**	**Reconstruction**	**Wed 1/9/99**	**Fri 21/12/01**
	Notes				
	Aim of the following plan is to have all algorithms (both online and offline) in the same framework and with the same interfaces by end 2000 (or early 2001). Global studies on different physics channels will be performed to optimise the overall performance.				

ID	PBS	PBS-Name	Task Name	Start	Finish
131	3.2.3	OSIR	Seeds package as separate unit	Mon 3/4/00	Fri 30/6/00
	Notes				
	This is needed as input by all pattern recognition programs. Will need info from muons, EM and had calorimetry, trigger RoIs, as well as from truth (event generators and Geant).				
132	3.2.3	OSIR	iPatRec in PASO	Wed 1/9/99	Fri 28/4/00
	Notes				
	Mainly data access through Event.				
133	3.2.3	OSIR	xKalman++ in new framework	Mon 3/4/00	Fri 29/9/00
	Notes				
	Test of new framework. Depends on framework timescale.				
134	3.2.3	OSIR	iPatRec in new framework	Thu 1/6/00	Fri 29/9/00
	Notes				
	Not too much work…				
135	3.2.3	OSIR	Checks of pattern recognition programs with current geom	Thu 1/6/00	Fri 29/9/00
	Notes				
	Must deal with non-uniform field.				
136	3.2.3	OSIR	Reconstruction as good as ATRECON	Fri 22/12/00	Fri 22/12/00
	Notes				
	Includes testing!				
137	3.2.3	OSIR	SCT-Kalman in PASO and new framework	Mon 3/4/00	Fri 30/6/00
	Notes				
	First L2 trigger algorithm in off-line environment.				
138	3.2.3	OSIR	Other L2 algorithms in framework	Wed 3/1/01	Fri 29/6/01
	Notes				
	Aim is to have ALL pattern recognition programs available in the same environment.				
139	3.2.3	OSIR	Modularisation of iPatRec	Tue 4/4/00	Fri 22/12/00
	Notes				
	Divide into smaller packages with well defined interfaces: pattern recognition, track extrapolation, track fit. TRT_Rec already in progress.				
140	3.2.3	OSIR	Modularisation of xKalman++	Wed 2/8/00	Fri 22/12/00
	Notes				
	Divide into smaller packages with well defined interfaces: pattern recognition, track extrapolation/fit (filter/smoother).				
141	3.2.3	OSIR	ASTRA in new framework	Fri 1/12/00	Mon 30/4/01

ID	PBS	PBS-Name	Task Name	Start	Finish
142	3.2.3	OSIR	Conversion/adaptation of xHouRec and PixlRec	Wed 3/1/01	Fri 29/6/01
	Notes				
	Could be considered as extensions of other algorithms.				
143	3.2.3	OSIR	New xConver	Mon 4/9/00	Fri 22/12/00
	Notes				
	It needs a new fitting routine to replace the F77 version of Minuit. Could use wrapped CVTMFT (CDF vertex fitting package) or C++ version of Minuit.				
144	3.2.3	OSIR	Vertex finding/fitting	Mon 4/9/00	Fri 29/6/01
	Notes				
	Strategy not yet clear. Could use wrapped CVTMFT (CDF vertex fitting package) initially.				
145	3.2.3	OSIR	Optimisation of pattern recognition strategy	Wed 3/1/01	Fri 21/12/01
	Notes				
	For all physics and luminosity conditions. Comparison of different pattern recognition, track extrapolation and track fitting algorithms in the same environment. Will obviously continue forever!				
146	**3.2.4**	**OSID**	**Data base interface**	**Tue 2/11/99**	**Thu 21/12/00**
	Notes				
147	3.2.4	OSID	Pixel and SCT in XML	Tue 2/11/99	Fri 28/4/00
	Notes				
	Work started last Autumn. Barrel SCT basically done, forward SCT being implemented. Pixels exist as active material, support and services being done.				
148	3.2.4	OSID	TRT in XML	Tue 1/2/00	Fri 30/6/00
	Notes				
	Work just started in Indiana University.				
149	3.2.4	OSID	Reconstruction geometry from detector description	Mon 3/4/00	Fri 29/9/00
	Notes				
	Needs agreement on "reconstruction geometry" (dead material representation) and manpower!				
150	3.2.4	OSID	Conditions data base	Mon 3/7/00	Thu 21/12/00
	Notes				
	Contains info to run simulation and (more important) pattern recognition: alignments, calibrations, inefficient and noisy read-out channels. To be used by everybody as soon as it is available. Work not yet started (but some provision for it in iPatRec). Needs thinking and manpower.				
151	3.2.4	OSID	Update Event for current geometry	Tue 2/5/00	Fri 30/6/00
	Notes				
	Different number of Pixel detector disks and modular TRT structure (after B8).				

ID	PBS	PBS-Name	Task Name	Start	Finish
152	3.2.5	OSIB	Test beams	Wed 1/3/00	Thu 20/12/01
	Notes				
	Random start/finish dates				
153	**3.2.6**	**OSIA**	**Alignment and calibration**	**Wed 3/1/01**	**Fri 21/12/01**
154	3.2.6	OSIA	Study of alignment strategy, program develoment	Wed 3/1/01	Fri 21/12/01
	Notes				
	Some studies exist. Needs thorough thinking! Of course it will also continue forever.				
155	3.2.6	OSIA	TRT drift time calibration	Mon 8/1/01	Fri 21/12/01
	Notes				
	Study of calibration strategy. Magnetic field dependence of drift time along each straw? Optimisation of corrections. Random start/finish dates				
156	**3.2.7**	**OSIG**	**Graphics**	**Mon 4/1/99**	**Fri 17/12/99**
	Notes				
	Random start/finish dates				
157	3.2.7	OSIG	Initial implementation	Mon 4/1/99	Fri 17/12/99
158	**3.3**	**OSL**	**Liquid Argon Calorimeter software**	**Mon 2/8/99**	**Fri 21/12/01**
159	**3.3.1**	**OSLC**	**Common items**	**Wed 1/12/99**	**Fri 29/6/01**
160	3.3.1	OSLC	Project definition - first iteration	Wed 1/12/99	Wed 8/3/00
	Notes				
	Expected products and artifacts at the end of the inception phase: - most critical use-cases - initial use-case model - initial analysis model - initial design model - initial implementation model - tentative architecture - Packages - risk identification - priorities - Planning of elaboration phase + tentative planning of whole project See http://cern.ch/Atlas/GROUPS/LIQARGON/software/				
161	3.3.1	OSLC	Project definition - second iteration	Wed 1/3/00	Wed 31/5/00
162	3.3.1	OSLC	Implement ideas into May framework	Mon 3/4/00	Sat 30/9/00
	Notes				
	These are the ideas collected during the two iterations on the project definition.				
163	3.3.1	OSLC	First full release of LAr OO/C++ software	Fri 29/6/01	Fri 29/6/01
164	**3.3.2**	**OSLS**	**Simulation**	**Wed 1/9/99**	**Fri 29/12/00**

ID	PBS	PBS-Name	Task Name	Start	Finish
165	**3.3.2**	**OSLS**	**G4 implementation tests**	**Wed 1/9/99**	**Fri 29/12/00**
	Notes				
	Seen as implementation tests of the LAr calorimeters before or in parallel to the development of the full ATLAS s/w. It will also allow us to form teams in the simulation sector.				
166	3.3.2	OSLS	HEC M0 description	Wed 1/9/99	Fri 29/10/99
167	3.3.2	OSLS	HEC M0 first results	Wed 1/12/99	Tue 29/2/00
168	3.3.2	OSLS	HEC M0 validation	Wed 1/3/00	Wed 31/5/00
169	3.3.2	OSLS	EMB M0 description	Wed 1/9/99	Fri 31/3/00
170	3.3.2	OSLS	EMB M0 first results	Mon 3/4/00	Fri 30/6/00
171	3.3.2	OSLS	EMB M0 validation	Mon 3/7/00	Fri 29/9/00
172	3.3.2	OSLS	EMEC M0 description	Mon 15/5/00	Mon 31/7/00
173	3.3.2	OSLS	EMEC M0 first results	Tue 1/8/00	Tue 31/10/00
174	3.3.2	OSLS	EMEC M0 validation	Wed 1/11/00	Fri 29/12/00
175	3.3.2	OSLS	FCAL M0 description	Wed 1/9/99	Fri 31/3/00
176	3.3.2	OSLS	FCAL M0 first results	Mon 3/4/00	Fri 30/6/00
177	3.3.2	OSLS	FCAL M0 validation	Mon 3/7/00	Fri 29/9/00
178	3.3.2	OSLS	Coil & cryostats description	Wed 1/9/99	Fri 31/3/00
179	3.3.2	OSLS	Coil & cryostats first results	Mon 3/4/00	Fri 30/6/00
180	3.3.2	OSLS	Coil & cryostats validation	Mon 3/7/00	Fri 29/9/00
181	**3.3.3**	**OSLR**	**Reconstruction**	**Mon 2/8/99**	**Fri 29/6/01**
182	3.3.3	OSLR	Reverse engineering of ATRECON LAr code	Mon 1/11/99	Mon 31/1/00
	Notes				
	A ``reverse engineering'' of the ATRECON for the LAr calorimeter part was done. The documentation contains the subroutine calling tree of ATRECON , plus some information about the ZEBRA banks and their contents. The document is available at /afs/cern.ch/user/s/schwind/public/code.ps .				
183	3.3.3	OSLR	OO analysis and prototype implementation	Mon 2/8/99	Fri 29/9/00
	Notes				
	In parallel an OO analysis of the LAr calorimeter reconstruction is being pursued. It implements the ATF recommendation of separating data and algorithm objects and makes use of the STL, details can be consulted at http://www.usatlas.bnl.gov/detector/lar/software/reco.html An evaluation of this approach is promised for the February 2000 LAr week.				
184	3.3.3	OSLR	Deliver code for TDAQ TDR studies	Mon 2/10/00	Fri 29/12/00

ID	PBS	PBS-Name	Task Name	Start	Finish
185	3.3.3	OSLR	Reconstruction as good as ATRECON	Fri 22/12/00	Fri 22/12/00
186	3.3.3	OSLR	Connection with detector description, calibration	Wed 3/1/01	Fri 29/6/01
187	**3.3.4**	**OSLD**	**Data base interface**	**Wed 1/12/99**	**Tue 29/2/00**
188	3.3.4	OSLD	Barrel accordion geometry in XML	Wed 1/12/99	Tue 29/2/00
189	**3.3.5**	**OSLB**	**Test beams**	**Wed 1/3/00**	**Fri 22/12/00**
190	3.3.5	OSLB	OO analysis, use cases, entities, interfaces	Wed 1/3/00	Wed 31/5/00
191	3.3.5	OSLB	Event model and first implementation	Thu 1/6/00	Fri 29/9/00
192	3.3.5	OSLB	First events in Atlas event store	Mon 2/10/00	Tue 31/10/00
193	3.3.5	OSLB	Read from Atlas event store	Mon 2/10/00	Fri 22/12/00
	Notes				
	Read into new reconstruction and calibration program				
194	3.3.6	OSLA	Alignment and calibration	Wed 3/1/01	Fri 21/12/01
	Notes				
	Random start/finish dates				
195	**3.3.7**	**OSLG**	**Graphics**	**Tue 2/5/00**	**Mon 31/7/00**
	Notes				
	Random start/finish dates				
196	3.3.7	OSLG	Initial implementation	Tue 2/5/00	Mon 31/7/00
	Notes				
	Preliminary dates, pending authorisation to check code into repository				
197	**3.4**	**OST**	**Tile Calorimeter software**	**Wed 1/3/00**	**Fri 21/12/01**
198	3.4.1	OSTC	Common items	Wed 1/3/00	Thu 20/12/01
	Notes				
	Random start/finish dates				
199	3.4.2	OSTS	Simulation	Wed 1/3/00	Thu 20/12/01
	Notes				
	Random start/finish dates				
200	**3.4.3**	**OSTR**	**Reconstruction**	**Wed 1/3/00**	**Thu 20/12/01**
	Notes				
	Random start/finish dates				

ID	PBS	PBS-Name	Task Name	Start	Finish
201	3.4.3	OSTR	Develop clustering code	Wed 1/3/00	Thu 20/12/01
	Notes				
	Random start/finish dates. The structure of the Tile code will allow several differrent algorithms (strategy classes) to be run simultaneously for comparison. Clusters can be based on either cells or on towers. The algorithms will include clusters based on building clusters around "hot-tower" seeds, as well as on the "sliding-window" method.				
202	3.3.3	OSLR	Reconstruction as good as ATRECON	Fri 22/12/00	Fri 22/12/00
203	3.4.4	OSTD	Data base interface	Wed 1/3/00	Thu 20/12/01
	Notes				
	Random start/finish dates				
204	3.4.5	OSTB	Test beams	Wed 1/3/00	Thu 20/12/01
	Notes				
	Random start/finish dates				
205	3.4.6	OSTA	Alignment and calibration	Wed 3/1/01	Fri 21/12/01
	Notes				
	Random start/finish dates				
206	**3.4.7**	**OSTG**	**Graphics**	**Tue 2/5/00**	**Fri 29/9/00**
	Notes				
	Random start/finish dates				
207	3.4.7	OSTG	Initial implementation	Tue 2/5/00	Fri 29/9/00
	Notes				
	J Hrivnac acts as current maintainer until somebody from the Tile community can be found.				
208	**3.5**	**OSM**	**Muon spectrometer software**	**Fri 1/10/99**	**Fri 28/12/01**
209	3.5.1	OSMC	Common items	Wed 1/3/00	Thu 20/12/01
	Notes				
	Random start/finish dates				
210	**3.5.2**	**OSMS**	**Simulation**	**Wed 1/3/00**	**Thu 21/12/00**
211	3.5.2	OSMS	Test AMDB -> G4 -> Reconstruction	Wed 1/3/00	Fri 31/3/00
	Notes				
	This is for MDT only				
212	3.5.2	OSMS	Acceptance studies for AMDB' and G4	Wed 1/3/00	Fri 30/6/00
	Notes				
	This is for MDT only; comparison with G3				
213	3.5.2	OSMS	Atlas note	Wed 1/3/00	Fri 30/6/00
	Notes				
	This note will describe the test of the chain AMDB -> G4 -> Reconstruction, and the G4 vs G3 acceptance studies, for the MDT				

ID	PBS	PBS-Name	Task Name	Start	Finish
214	3.5.2	OSMS	H8 testbeam simulation	Wed 1/3/00	Fri 30/6/00
215	**3.5.2**	**OSMS**	**G3 simulation for trigger studies**	**Wed 1/3/00**	**Fri 30/6/00**
216	3.5.2	OSMS	Add CSCs	Wed 1/3/00	Fri 30/6/00
	Notes Simulation and digitisation				
217	3.5.2	OSMS	Add overlapping RPC	Wed 1/3/00	Fri 30/6/00
	Notes Simulation				
218	3.5.2	OSMS	AMDB+ to G4	Wed 1/3/00	Thu 21/12/00
	Notes AMDB+ is the version with the overlapped RPCs				
219	3.5.2	OSMS	Physics TDR figures with G4	Wed 1/3/00	Thu 21/12/00
	Notes Target: G4 vs G3 comparison				
220	3.5.2	OSMS	Test beam analysis	Wed 1/3/00	Fri 30/6/00
221	3.5.2	OSMS	AMDB to G4 for TDC and CSC	Wed 1/3/00	Thu 21/12/00
222	**3.5.3**	**OSMR**	**Reconstruction**	**Wed 1/3/00**	**Fri 22/12/00**
223	3.5.3	OSMR	Muonbox: Clean up TDR version	Wed 1/3/00	Fri 31/3/00
	Notes • Calorimeter description from data base • better algorithm for low pt tracking • possibility to get energy loss from calorimeter cells				
224	3.5.3	OSMR	Muonbox: Wrapping	Wed 1/3/00	Fri 31/3/00
	Notes • MDT from Event package • RPC from Event package • Modularisation: track segments; track fitting segments; track fitting digits				
225	3.5.3	OSMR	Amber: Port to Unix	Wed 1/3/00	Fri 31/3/00
226	3.5.3	OSMR	Amber workshop	Mon 20/3/00	Thu 23/3/00
227	3.5.3	OSMR	Muonbox update for trigger studies	Wed 1/3/00	Fri 30/6/00
	Notes • Add CSCs • Overlapping RPCs				

ID	PBS	PBS-Name	Task Name	Start	Finish
228	3.5.3	OSMR	Amber: Port to framework	Wed 1/3/00	Fri 30/6/00
	Notes				
	• Remove dependencies on obsolete packages (eg Arve) • Port to new framework (or PASO)				
229	3.5.3	OSMR	Plan for Amber evaluation	Wed 1/3/00	Fri 30/6/00
230	3.5.3	OSMR	Evaluate whether new reconstruction package is needed	Wed 1/3/00	Mon 31/7/00
231	3.5.3	OSMR	Evaluate AGDD for muon reconstruction	Wed 1/3/00	Fri 29/9/00
232	3.5.3	OSMR	Define relation with Event Filter	Wed 1/3/00	Fri 30/6/00
233	3.3.3	OSLR	Reconstruction as good as ATRECON	Fri 22/12/00	Fri 22/12/00
234	**3.5.4**	**OSMD**	**Data base interface**	**Fri 1/10/99**	**Fri 28/12/01**
235	**3.5.4**	**OSMD**	**Muon digit extraction from G3**	**Fri 1/10/99**	**Fri 31/3/00**
236	3.5.4	OSMD	MDT digits from G3	Fri 1/10/99	Fri 17/12/99
	Notes				
	Random start/finish dates				
237	3.5.4	OSMD	RPC digits from G3	Wed 1/3/00	Fri 31/3/00
238	3.5.4	OSMD	TGC digits from G3	Wed 1/3/00	Fri 31/3/00
239	**3.5.4**	**OSMD**	**Initial XML descriptions**	**Wed 1/3/00**	**Fri 30/6/00**
240	3.5.4	OSMD	MDT	Wed 1/3/00	Fri 30/6/00
241	3.5.4	OSMD	RPC	Wed 1/3/00	Fri 30/6/00
242	3.5.4	OSMD	TGC	Wed 1/3/00	Fri 30/6/00
243	3.5.4	OSMD	CSC	Wed 1/3/00	Fri 30/6/00
244	3.5.4	OSMD	Integration	Wed 1/3/00	Fri 30/6/00
245	**3.5.4**	**OSMD**	**Test G4 geometry from XML**	**Wed 1/3/00**	**Fri 28/4/00**
	Notes				
	Test the full chain of the muon detector description for G4 simulation: XML -> Generic model -> G4 geometry				
246	3.5.4	OSMD	XML for 1 barrel module	Wed 1/3/00	Fri 28/4/00
	Notes				
	1 barrel module MDT and RPC				
247	3.5.4	OSMD	G4 application	Wed 1/3/00	Fri 28/4/00

ID	PBS	PBS-Name	Task Name	Start	Finish
248	3.5.4	OSMD	(Re-)Define simulated digits and hits	Wed 1/3/00	Thu 21/12/00
249	3.5.4	OSMD	Event data model for rec. objects	Thu 2/3/00	Fri 29/6/01
250	3.5.4	OSMD	Calibration and alignment	Wed 1/3/00	Fri 28/12/01
251	3.5.5	OSMB	Test beams	Wed 1/3/00	Thu 20/12/01
	Notes				
	Random start/finish dates				
252	3.5.6	OSMA	Alignment and calibration	Wed 3/1/01	Fri 21/12/01
	Notes				
	Random start/finish dates				
253	**3.5.7**	**OSMG**	**Graphics**	**Wed 1/3/00**	**Fri 29/9/00**
	Notes				
	Random start/finish dates				
254	3.5.7	OSMG	Initial implementation of MDT	Wed 1/3/00	Wed 31/5/00
255	3.5.7	OSMG	Initial implementation of other devices	Fri 2/6/00	Fri 29/9/00
256	**3.6**	**OSD**	**Trigger and data acquisition**	**Wed 1/3/00**	**Thu 21/12/00**
257	3.6	OSD	Requirements for new framework	Wed 1/3/00	Thu 21/12/00
	Notes				
	Random start/finish dates. This framework is a consolidation of Atrig, Ctrig, and the prototype OO/C++ software for L2, and will run within the general purpose Atlas framework. It will provide the infrastructure for - LVL1 trigger simulation - Development of LVL2 algorithms and will allow for performance and resource measurements.				
258	**3.7**	**OSE**	**Event filter**	**Wed 1/3/00**	**Thu 20/12/01**
259	3.7	OSE	Study suitability of offline reconstruction algorithms	Wed 1/3/00	Thu 20/12/01
	Notes				
	Random start/finish dates				
260	3.7	OSE	Requirements on Event	Wed 1/3/00	Thu 20/12/01
	Notes				
	Random start/finish dates				
261	**3.8**	**OSS**	**Detector Simulation**	**Mon 15/2/99**	**Fri 29/6/01**
262	**3.8.1**	**OSSG**	**Event generators**	**Mon 13/12/99**	**Fri 29/6/01**

ID	PBS	PBS-Name	Task Name	Start	Finish
263	3.8.1	OSSG	Generators: I/f Pythia to HepMC++	Mon 13/12/99	Fri 31/12/99
	Notes		This task is to interface Pythia to HepMC++, which is the C++ analogue of the HepEvt COMMON block.		
264	3.8.1	OSSG	All major generators ifaced to HepMC++	Mon 3/7/00	Fri 11/8/00
	Notes		This task completes the i/facing of major generators (e.g.Herwig, Isajet) to HepMC++.		
265	3.8.1	OSSG	Major Generators I/faced to Framework	Tue 15/8/00	Mon 25/9/00
	Notes		Once this is done, the framework can generate events and do FAST simulation. (via ATLFAST).		
266	3.8.1	OSSG	Library of generators available	Fri 29/6/01	Fri 29/6/01
267	**3.8.2**	**OSSD**	**Detailed detector simulation**	**Mon 15/2/99**	**Fri 22/12/00**
268	3.8.2	OSSD	Geant3 HIT data available	Tue 1/2/00	Mon 31/7/00
	Notes		This refers also to the G3 PTDR events, but not the Geant 'HIT' data. Access to this is needed for e.g. 'pile-up' studies. However, simple access to the HIT data is not all that is required, the 'transformation' routines to turn HIT into DIGI is also needed, and this is implied by this task.		
269	3.8.2	OSSD	Geant3 DIGI data available	Sun 20/2/00	Fri 28/4/00
	Notes		This is the completion of the task of making the PTDR G3 DIGI information available in the C++ f/work. (PASO, etc.). The only DIGI information which might come a little later is the Muon CSC info.		
270	3.8.2	OSSD	Infrastructure for identical geometries in Geant3 and Gean	Mon 2/10/00	Fri 22/12/00
	Notes		Driven by requirement to perform G3 vs G4 test. Not yet clear how to accomplish - possibilities are: - XML to Geant3 builder - G3 to XML by hand (one geometry only - Physics TDR) - G3 to XML automatically - G3 to G4 automatically		
271	3.8.2	OSSD	Geant 3 interfaced to Framework ??	Mon 2/10/00	Fri 22/12/00
	Notes		This is an open question. We can already read existing G3 events in PASO, and hence will be able to in new framework. So we can generate new G3 events, write them out to ZEBRA etc., and read them back in the same way. There is however a requirement to compare G4 and G3 with the SAME Geometry. How do we do this? The 5* way would be to have an xml->G3 builder (to parallel xml->G4) with both G3 and G4 callable from framework. We will have this in due course for G4, but it is a lot of work for G3 and there may be higher priorities! Probably preferable to transcribe a G3 geometry into xml, and thence to G4.		
272	3.8.2	OSSD	Optimise Geant 4 builder	Tue 4/7/00	Fri 22/12/00

ID	PBS	PBS-Name	Task Name	Start	Finish
273	3.8.2	OSSD	Geant 4 interfaced to Framework	Mon 2/10/00	Fri 22/12/00
	Notes		G4 has to be interfaced to framework in some way. I think the right way is for f/work to 'own' the event loop, and G4 code to be invoked from there.		
274	3.8.2	OSSD	Interface to magn. Field	Mon 15/2/99	Mon 15/2/99
	Notes		This is also a task which was in the 'old' list. What is meant exactly? Interface whose field map to what...???		
275	**3.8.3**	**OSSF**	**Fast detector simulation**	**Sat 20/5/00**	**Fri 22/12/00**
276	3.8.3	OSSF	Decompose ATLFAST(Ftn) version	Sat 20/5/00	Fri 2/6/00
	Notes		This task consists of taking the present Fortran version of ATLFAST and removing its dependency on the event generator and on N-tuples, to allow interface to new f/work.		
277	3.8.3	OSSF	I/face ATLFAST(Ftn,Root) to f/work	Tue 1/8/00	Mon 28/8/00
	Notes		This means interfacing the Fortran version of ATLFAST ('decomposed' as per previous task) and the 'ROOT' version of ATLFAST++ to new framework. Aim is that physics groups can start using ATLFAST in new framework.		
278	3.8.3	OSSF	I/face new ATLFAST(C++) to f/work	Fri 1/12/00	Fri 22/12/00
	Notes		This refers to a new (non-ROOT) C++ version, properly OO designed, of ATLFAST which should be ready for Dec, 2000. We will then have three variants of ATLFAST usable from new framework. Comparisons then available for Spring 2001 Physics w/shop.		
279	**3.8.4**	**OSSP**	**Shower parametrisation**	**Mon 2/10/00**	**Fri 22/12/00**
280	3.8.2	OSSD	Integration of shower parametrisation	Mon 2/10/00	Fri 22/12/00
	Notes		Integration into Atlas Framework, callable from Geant4 and/or Atlfast		
281	**3.9**	**OSR**	**Reconstruction**	**Wed 1/3/00**	**Fri 21/12/01**
282	**3.9**	**OSR**	**Common items**	**Wed 1/3/00**	**Fri 21/12/01**
283	3.9	OSR	Definition of reconstructed objects	Wed 1/3/00	Mon 31/7/00
	Notes		Needs agreement of A-team, ID and muons. To be used at least for output, possibly also for inter-module communication. Track class is a very prominent example		
284	3.9	OSR	Vertexing	Mon 3/7/00	Fri 21/12/01
285	**3.9.1**	**OSRE**	**Electrons and photons**	**Wed 1/3/00**	**Fri 21/12/01**

ID	PBS	PBS-Name	Task Name	Start	Finish
286	3.9.1	OSRE	Modularise brem recovery	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates. The bremsstrahlung recovery code needs to be made more modular and hence flexible. It should be possible to use the algorithms (both those applied at the level if the ID itself or those using the Calorimeter cluster information) with different track fits.				
287	3.9.1	OSRE	Improve conversion finding	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates. There should be improvements in the conversion finding to enable conversions to be reconstructed with high and well understood efficiencies. This needs to be coupled with the ability to refit tracks with hits removed and to swim the track parameters to the conversion point.				
288	3.9.1	OSRE	Coherent approach to pattern recognition	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates. There is a need for a coherent approach to pattern recognition so as to be able to veto electrons which may otherwise be identified as photons.				
289	3.9.1	OSRE	Requirements for e measurements and E/p calibration	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates. Coupled to the improvements in bremsstrahlung recovery, a better understanding is needed of what is actually required for electron measurements and E/p calibration. This includes understanding the effect of material in the Inner Detector at different radii.				
290	3.9.1	OSRE	Improve measurements of e and converted photons	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates. With improved tools coming from the Inner Detector and Calorimeter communities, it will be possible to improve measurements of electrons and converted photons using the combination of the two detectors. This work was started for the Physics TDR but needs to be investigated more thoroughly.				
291	3.9.1	OSRE	Improve e and photon identification	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates. Much work has been done on electron and photon identification, however the choice of variables and how they are combined needs to be considered more carefully, especially in the case of soft-electron tagging.				
292	3.3.3	OSLR	Reconstruction as good as ATRECON	Fri 22/12/00	Fri 22/12/00
293	**3.9.2**	**OSRJ**	**Jets and missing Et**	**Wed 1/3/00**	**Fri 21/12/01**
294	3.9.2	OSRJ	Rewrite common jet code in OO/C++	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates				
295	3.9.2	OSRJ	Modularise jet reconstruction	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates				
296	3.9.2	OSRJ	Identify common aspects with e/gamma and calorimeters	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates				

ID	PBS	PBS-Name	Task Name	Start	Finish
297	3.9.2	OSRJ	Develop alternative approach using LAr/Tile clusters	Wed 1/3/00	Fri 21/12/01
	Notes				
	Associate the Tile and LArg clusters which have overlapping eta and phi projections to form clusters of localised energydepostion corresponding to either particles or jets.				
298	3.9.2	OSRJ	Integrate jet energy calib into reconstruction	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates				
299	3.9.2	OSRJ	Jet energy calibration	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates. Jet energy calibration across the full eta range, with the effects of non-compensation, dead material, crack regions, electronic noise and pile-up taken into account.				
300	3.9.2	OSRJ	Energy flow algorithm	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates. A general energy flow algorithm combining calorimeter and track information.				
301	3.9.2	OSRJ	Optimise missing Et algorithm	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates. ETmiss algorithm optimization in presence of pile-up and electronic noise.				
302	3.3.3	OSLR	Reconstruction as good as ATRECON	Fri 22/12/00	Fri 22/12/00
303	**3.9.3**	**OSRM**	**Muons**	**Wed 1/3/00**	**Fri 21/12/01**
304	3.9.3	OSRM	Compare performance of various packages	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates. Presently there are three Muon Combined Reconstructions: STACO (FORTRAN/Statistical Combination), MUID (C++/c2-refit) and COBRA (C++/Kalman filter refit). All of them are using either the xKalman or the iPatRec Inner Detector packages and the Muonbox Muon Spectrometer package. A common issue is the error propagation and energy loss corrections in the crossing of the calorimeter system. COBRA uses for this purpose the GEANE package. STACO relies on the propagation performed by Muonbox. Both MUID and Muonbox account for energy losses by using either computed average energy losses or the observed calorimeter energy deposition. Performance of the different procedures within the packages should be compared before to envision a common tool. It should be emphasized that the optimization of such a tool requires the interaction with the Detector Description and the Field Description. This interaction may affect the technical performance of the tool and therefore a careful design/implementation is mandatory.				
305	3.9.3	OSRM	Clean up MUID/Muonbox interface	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates. No major structural changes are expected to be induced by the change of framework but in the case of the interaction of MUID/Muonbox which is presently implemented by mapping the Muonbox FORTRAN commons with C structures used in MUID. There is no difficulty foreseen in the removal of this intimate connection as soon as Muonbox will be adapted to C++. The STACO set of FORTRAN routines can be easily translated into C.				
306	3.9.3	OSRM	Optimise muon isolation criteria	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates. Muon isolation criteria, to measure the physics activity around the muon track using the measurements in the calorimeter; this analysis can be efficiently used also to derive the corrections, from measurements, due to the muon energy losses.				
307	3.9.3	OSRM	Improve id of low-pt muons	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates. Use of the tracks segment in the inner most stations of Muon Spectrometer, to allor identification of low pT muons				

ID	PBS	PBS-Name	Task Name	Start	Finish
308	3.9.3	OSRM	Improve id of muons inside jets	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates				
309	3.9.3	OSRM	Improve rejection of K and pi decays	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates				
310	3.9.3	OSRM	Fast combination algorithms for LVL2	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates				
311	3.3.3	OSLR	Reconstruction as good as ATRECON	Fri 22/12/00	Fri 22/12/00
312	**3.9.4**	**OSRS**	**B tagging**	**Wed 1/3/00**	**Fri 21/12/01**
313	3.9.4	OSRS	Improve algorithm	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates. The algorithm can be improved considering also other track parameters, such as the longitudinal impact parameter, which could help to decrease the misidentification probability of non-b jets while keeping the same efficiency for b-jets. Other possibilities are the explicit reconstruction of vertices from tracks in the jet and heavier weights given to prompt leptons in the jet.				
314	3.9.4	OSRS	OO/C++ design and implementation	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates. The time scale of this development is closely related to the availability of the “reconstruction entities” as C++ objects, as Calorimeter jets and Inner Detector tracks are the primary ingredients of the algorithm.				
315	3.3.3	OSLR	Reconstruction as good as ATRECON	Fri 22/12/00	Fri 22/12/00
316	3.9	OSR	ATRECON-like reconstruction in new framework	Fri 22/12/00	Fri 22/12/00
	Notes				
	Not all will be OO/C++; some modules will be wrapped Fortran from ATRECON, but the complete ATRECON-like functionality is aimed for.				
317	3.9	OSR	First full release of OO/C++ reconstruction	Fri 21/12/01	Fri 21/12/01
	Notes				
	This version will contain OO/C++ modules broken down to the desired level, and will make full use of the data base and of other relevant framework services.				
318	3.10	OSB	Test beam infrastructure	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates				
319	**3.11**	**OSA**	**Applications**	**Wed 1/3/00**	**Fri 21/12/01**
320	3.11.1	OSAI	Integration and testing	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates				

ID	PBS	PBS-Name	Task Name	Start	Finish
321	3.11.2	OSAM	Maintenance	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates				
322	**4**	**OU**	**Software Support**	**Wed 1/3/00**	**Fri 21/12/01**
323	4.1	OUR	Software repository	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates				
324	4.2	OUT	Development tools	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates				
325	4.3	OUE	Training	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates				
326	4.4	OUD	Documentation	Wed 1/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates				
327	**5**	**OI**	**Infrastructure**	**Wed 1/3/00**	**Thu 30/6/05**
328	**5.1**	**OIR**	**Reconstruction farm**	**Mon 2/12/02**	**Thu 30/6/05**
	Notes				
	Needs revision. Subpoints are close to meaningless.				
336	5.2	OIM	Computing model for analysis	Thu 2/3/00	Fri 21/12/01
	Notes				
	Random start/finish dates				
337	**5.3**	**OIW**	**World-wide computing**	**Wed 1/3/00**	**Fri 21/12/01**
	Notes				
	Needs revision. Subpoints are close to meaningless.				
340	**6**	**OP**	**Data Production**	**Thu 1/3/01**	**Fri 20/12/02**
341	6	OP	Production for T/DAQ TDR	Thu 1/3/01	Wed 25/4/01
	Notes				
	Important milestone for off-line. Want 'functional' production, using new versions of programs, for Event Filter study of 'electron slice'. There are open questions: e.g. G4 or G3 used to simulate events? (G4 will not be fully checke dout of course at start of this production, but for a TDR read at the end of 2001 to use only G3 events feels wrong.) How many events needed?				

ID	PBS	PBS-Name	Task Name	Start	Finish
"Production for T/DAQ TDR" continued					
	Notes				
342	6	OP	Production for MDC 0	Mon 1/10/01	Wed 31/10/01
343	6	OP	Production for MDC 1	Thu 1/11/01	Fri 21/12/01
344	6	OP	Production for MDC 2	Tue 1/10/02	Fri 20/12/02