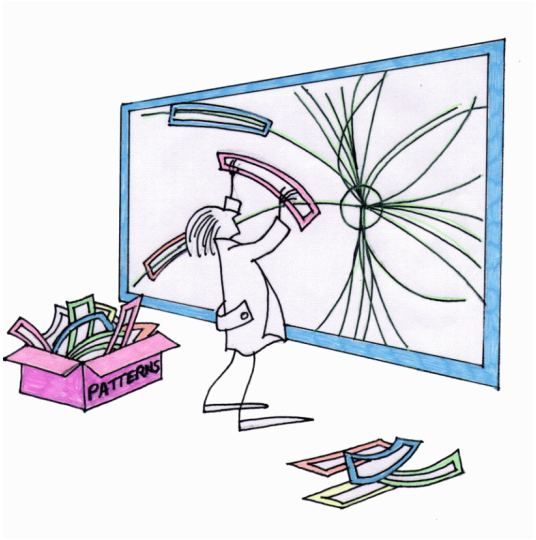

FTK

Fast TracKer for hadron collider experiments

324318, FP7-PEOPLE-2012-IAPP

Support Document 1:

List of publications and Trainings, Gantt Chart description

Support Document Version:	1, v.1.0
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Project Details	
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Project Title:	Fast TracKer for hadron collider experiments
Project Number:	324318
Call Identifier:	FP7-PEOPLE-2012-IAPP
Call Theme:	Industry Academia Partnerships & Pathways (IAPP)
Project Coordinator:	Università di Pisa (UNIPI) – IT
Participating Partners:	AUTH, CAEN, CERN, CNRS, PRIELE, UNIPI
Instrument:	CP-FP
Contract Start Date:	February 1, 2013
Duration:	48 months

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1.0	22/02/2015	Draft	Author: P. Giannetti (FTK collaboration), M. Dell'Orso (UNIPI)

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Abbreviations and Acronyms

Demonstrator	The Demonstrator is the first part of processor that will take data at CERN. During our application we were proposing a very small system, just to demonstrate the feasibility of FTK. It was originally expected to take the first data in 2015, but delays on the AMchip design have moved these expectations to 2016. Given the delay, ATLAS has requested to start with a more complete system, able to trigger on some physics. The Demonstrator has become larger, a 1/8 of FTK, able to process data in the central detector region (Barrel) if the multiple interactions at LHC (pile-up) are below 40 per bunch crossing.
SLP2	The new Processor Unit, designed during this project and called "Serial Link Processor" or SLP, has many points in common with the past developments. The SLP innovation consists in the use of high speed serial links everywhere in the system. This new feature determines the name of the new computing device. The AM board design was made complex by the enormous traffic of words flowing to/from the AM chips on many parallel buses. A redesign of the boards and a new AM chip equipped with serializers, deserializers and differential I/O have been perfomed to simplify and make more robust the system. SLP2 in particular is the processor developed for Level 2 trigger selections.
SLP1	SLP1 is the serial processor for Level 1 applications. While the SLP2 has a commissioning and production phase in our project, SLP1 is present only for R&D studies.

Executive Summary

The scope of this report is to provide to the reader additional information to make clearer the content of the official report of the outcomes inserted in SESAM for the FTK project.
During the first half of the project we have finalized 10 Deliverables (1 in WP1, 5 in WP2, 3 in WP4 and 1 in WP6) as scheduled for the scientific activity. In addition we have finalized 8 Deliverables for the WP7, outreach, and 5 Deliverables for WP8, Workshops &Trainings (Transfer of Knowledge). More details are in the Deliverables itself.
During the first half of the project 19 scientific papers have been published in international conferences. More details are in the Publications section below.
Atlas collaboration.

1 Trainings (technical and soft)

(A) ---- UNIPISA TRAINING in March 2013:
"The AM system": kick-off at UniPisa, for specific experience. Hands-on activity in Lab.
Three days training (see the attached deliverable D8.1&8.2_2013_FTK_wUNIPI&TrUNIPI.pdf)
(B) ---- CAEN TRAINING in July 2013,
"Silicon Photomultiplier read out-SIPM", "Past experience at LHC", "Overview of EU projects"
One afternoon training (see the deliverable D8.2_2013_CAEN_Training.pdf).
(C) ----- AUTH TRAINING, in March 2014.
"Embedded System Design Using FPGA Technology", "VHDL Verification Techniques" and "Design Exploiting FPGA Resources" with lab sessions, at AUTH.
Two days training (see the deliverable D8.2_2014_AUTH_Training.pdf).
(D) ----- PRIELE TRAINING, in Athens, October 7 2014.
"Overview of a successful PRIELE project: Laros. Remote Monitoring and Condition Based Maintenance in Maritime Industry"
One day training (see deliverable D8.2_2014_CAEN_Training.pdf).
---------- SOFT TRAININGS
-------- LANGUAGE Trainings – (a) 2 months Italian course for Mermikli and Sakellariou; (b) 4 months Italian course for Gentsos; (c) 10 private lessons for Sampsonidis; (d) long course of French lessons for Beccherle. (f) 4 months of Italian lessons for Sotiropoulou.
--------SECURITY & SAFETY at WORK. Half day training about the employer's and employee's responsibility to adhere to the legislation that affects them. Health, safety and security procedures.
--------COMMUNICATION Training. Goal: increase knowledge of the importance of communication skills, dissemination, planning, etc. One-afternoon training
"Communicating EU Research & Innovation", A guide for project participants, European Commission. One-afternoon training
Agenda: https://agenda.infn.it/conferenceDisplay.py?confId=8278
-------- MANAGEMENT training - Horizon 2020. One-afternoon training
Agenda: https://agenda.infn.it/conferenceDisplay.py?confId=8424
-------- HiPEAC training - Two hour seminar by C-L. Sotiropoulou and discussion.
Agenda: https://agenda.infn.it/conferenceDisplay.py?confId=8425
-------- SPECIFIC TRAININGS FOR A SINGLE FELLOW: personal trainings were offered following the particular interests of single fellows.
(1) Attended by F. Crescioli, CNRS: Analyse bionformatique des sequences nucleiques et proteiques.
(2) Attended by Beccherle: (a) Cadence training: Encounter Bottom Up Flow, (b) Doulos training: SystemVerilog for Verification Specialists with an introduction to UVM, (c) Cadence VCAD: Analog and Mixed Signal Workshop with 65nm Design Kit
(3) Attended by Piendibene: Accelerate System Performance with ALTERA SoC
(4) Attended by Gentsos: (a) DVCon Europe 2014, Munich; (b) Avnet X-Fest 2014 workshop, Milan.
(5) Attended by Sakellariou: Quality assurance for developing and production of high standards electronics for Space, Military and Scientific projects

Table 1: Fellow attendance to the offered trainings

Seconded/Recruited Researcher	UNIPI March 13 Training	CAEN July 13 Training	AUTH March 14 Training	PRIELE Oct. 7 Training	Language Lessons 2014 2015	Security & Safety at work June 2013	Communication skills - July 2014	Horizon 2020 July 2014	VHDL School July 2013	Bootcamp scientific software June 2014	HiPEAC July 2014
M. Piendibene (MER1)	X		X			X	X		X	X	X
S. Donati (MER2)	X						X				X
G. Volpi (ER15)				X		X		X	X		X
D. Dimas (ER5)		X		X					X		X
A. Sakellariou (ER6)	X		X		X						X
K. Mermikli (ESR8)	X		X		X			X			
N. Kimura (ER9)				X			X				X
K. Kordas (MER11)	X		X	X		X	X	X	X		X
D. Sampsonidis (MER12)			X		X	X		X		X	
C-L. Sotiropoulou (ER19)	X	X	X			X	X	X	X		X
C. Gentsos (ESR3)	X			X	XX	X	X	X			X
S. Petrucci (MER14)		X					X	X			X
G. Calderini (MER17)						X	X	X			
R. Beccherle (MER18)					X						X
F. Crescioli (ER14)	X	X	X	X		X	X	X			X

Legenda: Researcher Institution		CAEN			UNIPI			PRIELE			
		CNRS			AUTH						

2 Talks and papers

- **RD 2013**, Florence, Italy, July 2013
  - "Variable resolution Associative Memory optimization and simulation for the ATLAS Fast Tracker project", **C. Luongo**, Slides, Paper.
  - "The Associative Memory system for the FTK processor at ATLAS", **S. Citraro**, Slides, Paper.
- **ICATPP 2013**, Como, Italy, September 2013
  - "The Associative Memory system for the FTK processor at ATLAS", **D. Magalotti**, Slides, Paper.
  - "A Multi-Core FPGA-Based 2D-Clustering Algorithm for high-throughput data intensive applications", **C.-L. Sotiropoulou**, Slides, Paper.
  - "Variable resolution AM for the FTK ATLAS upgrade", **A. Annovi** Slides.
- **IEEE NSS 2013**, Seoul, Corea, October 2013
  - "A Multi-Core FPGA-Based Clustering Algorithm for Real-Time Image Processing", **C.-L. Sotiropoulou** Poster, Paper.
  - "The AM Boards for the FTK Processor at ATLAS", **A. Lanza** Poster ppt, Paper.
  - "Next generation Associative Memory devices for the FTK tracking processor of the ATLAS experiment", **F. Crescioli** Slides, Paper.
  - "Variable resolution pattern generation for the Associative Memory of the ATLAS FTK project", **A. Annovi** Poster,
- **TWEPP 2013**, Perugia, Italy, September 2013
  - "Next generation Associative Memory devices for the FTK tracking processor at ATLAS ", **M. Beretta** Poster ATL-DAQ-SLIDE-2013-850 ppt, Paper.
  - "Design of a hardware track finder (Fast TracKer) for the ATLAS trigger", **G. Volpi** Slides ppt, Paper.
- **RT 2014**, Nara, Japan, May 2014
  - "Associative Memory computing power and its simulation"**C. Luongo** Poster Slides
  - "A Highly Parallel FPGA Implementation of a 2D-Clustering Algorithm for the ATLAS Fast Tracker (FTK) Processor", **N. Kimura** Slides Paper
- **TIPP 2014**, Amsterdam, The Netherlands, June 2014
  - "The Serial Link Processor for the Fast TracKer (FTK) at ATLAS", **P. Luciano** Slides Paper
  - "Future Evolution of the FTK Processing Unit", **C. Gentsos** Slides Paper
  - "A High Performance Multi-Core FPGA Implementation for 2D Pixel CLustering for the ATLAS Fast TracKer (FTK) Processor", **C.-L. Sotiropoulou** Slides Paper
- **WIT 2014**, University of Pennsylvania, May 2014
  - "A Parallel FPGA Implementation for Real-Time 2D Pixel Clustering for the ATLAS Fast Tracker (FTK) Processor", **S. Gkaitatzis** Slides Paper
  - "The Serial Link Processor for the Fast TracKer (FTK) at ATLAS", **V. Liberali** Slides Paper
- **WASC 2014**, Workshop on the Architecture of Smart Cameras, Pisa, Italy, June 2014
  - "The FP7-IAPP-FTK project: real-time image reconstruction exported from High Energy Physics to the A.I. field", **S. Citraro** Slides
- **HSTD 2013,** Hiroshima, Japan. 1-5 September 2013 "Achievements of the ATLAS Upgrade Planar Pixel Sensors R&D Project", **G. Calderini**
- **DEBS 2015,** paper submitted to "The 9th ACM International Conference on Distributed Event-Based Systems" Oslo, Norway, June 29 - July 3, 2015.

Papers on peer review Journals

C.-L. Sotiropoulou, **et al.** "A Multi-Core FPGA-based 2D-Clustering Implementation for Real-Time Image Processing", accepted for publication in IEEE Transactions on Nuclear Science.

3 Gantt Chart changes: proposal and approval

We report here the motivations that were explained to ask to the project officer changes in the Gant Chart. All the changes have been approved during 2013 by Dr. Lucia Pacillo and during 2014 by Dr. Emanuela Marinelli and in 2015 by Dr. Athina Zampara. All the changes approved in 2013 and 2014 have been implemented in the Gantt Chart presented at the Mid Term Review Gantt_chart_approved_July2014.pdf.
We add now the description of proposals approved in 2015.
The new Gantt Chart is Gantt_chart _approved_March2015.pdf
In the Gantt Chart the column "before" shows the months active per ER, ESR in the Annex 1, while the column "after" shows the number today, included the new proposals. The rows where the month's distribution changed with respect before are coloured.
In this moment the total months for secondments will decrease of two months with respect the 89 months that are included in Annex 1, because a secondment of two months at PRIELE could not be performed. We have 87 secondment months (50,3%) and 86 recruitment months (49.7%), so secondments are still more than 50%. However we have the right person to recover the two months at PRIELE, they are not included now in the Gantt Chart, just because we need to be approved.

Changes to the Gantt Chart needed during 2013 and already approved by REA (e-mail Dr. Lucia Pacillo 29/07/2013 and 06/09/2013)

(1) Voudouris (ER4), Konstantakos (ER3) and Sidiropoulou (ESR13) left AUTH before the start of the FTK IAPP project. (a) Sotiropoulou (ER19) has taken all Voudouris's secondments at CAEN (4 months) and PRIELE (2 months), in addition of her already planned 5 months at CAEN (little difference on budget, since Voudouris was not married, while Sotiropoulou is married). (b) Gentsos has replaced Sidiropoulou at CAEN for 6 months (ESR3, he was ESR up to March 2014) and Konstantakos for 6 months at PRIELE (ER3). He should have gone to PRIELE in June-July, and later in September for task **T.1.3**, enabling tasks up to **T.1.6,** but given the fact that not enough experience about the project was transferred to PRIELE during the first Summer, and the board production (**T.1.4 and T.1.5)** was delayed by the experiment because of the AMchip05 production delays, we asked and obtained to postpone to the following years the PRIELE secondment (see also point 2) to better activate transfer of knowledge and have the AMchip05 produced at time of task **T.1.6** to be performed. Also ER19 secondment to PRIELE was delayed for the motivations at point 2.
We obtained instead to anticipate the SLP1 studies for Gentsos PHD thesis and he could come to CAEN as ESR, anticpating the 6 months scheduled as ESR13, while he will be ER (like Konstantakos) when he will go to PRIELE.
IMPACT (WP1 an WP2): Sotiropoulou and Gentsos did a wonderful work for the project, and the chosen arguments were perfect for their PHD thesis, while the standard plan with Vodouris and Konstatakos (post docs) was more devoted to production, so less suited for a PHD study. Given the delay of the AMchip, an FTK task that was not part of our IAPP-project, Gentsos's anticipation of a later part of the program (tasks **T.1.8 and T.2.6)** has been an advantage, so that instead of a global delay, what happened is actually a swap in time between 2 scientific arguments of our program. Sotiropoulou work also was extraordinary useful on the part of the FTK project that had no delay, the FTK_IM, and she was really the key person for this task to be completed in time, (FTK_IM recently passed the CERN "production readiness review" on October 2). In conclusion these initial modifications had a very good impact on the IAPP project and no negative impact on the global FTK project that was delayed, but due to tasks external to our IAPP project. An additional one year contingency was given by ATLAS management.

(2) The original Gant Chart had 8 months from AUTH to PRIELE of which 6 were in the first year. However the first production of boards and their tests that should have happened in PRIELE with numbers larger than a single prototype, was delayed by the AMchip05 delay (see the scientific program description). For this reason 6 months in the first year to PRIELE was not motivated by the evolution of the project. In addition AUTH and PRIELE were two new Institutions in FTK and the transfer of knowledge necessary to let them work 6 months alone, efficiently, without experts, was more than what we could obtain in the first year. The months to PRIELE will be recovered the second, third and fourth year, with profit, since we expect the production of boards to be active in these years. We will also try to split more the remaining months to better cover exactly the moments when the boards will be produced by the company.
IMPACT (WP1): the impact is positive, since the secondments of AUTH personnel at PRIELE so clustered in the first year was really too optimistic, considered that both the Institutions were new in the project. The delay of ATLAS has made the schedule at PRIELE much more realistic, enriching the activity in the third an forth years, that were empty, offering a natural contingency that has been exploited.

(3) For the same reasons of point (2) we decided that also Dimas 2013 secondment to AUTH should have been delayed to early 2014. In 2014 AUTH will have an active FTK test stand, and will be much more ready to receive personnel from PRIELE.
IMPACT (WP1): as for point 2.

(4) We needed to change the schedule of MER1 at CAEN. It was necessary because (a) so long periods of absence from UNIPI were difficult to implement, (b) CAEN has closure periods, and we needed suspensions not predicted at the beginning, (c) during the secondments it is not possible to be on the ATLAS experiment at CERN, and MER1 wanted to be able to participate to important CERN milestones. For PRIELE secondments the split was necessary since it was important for MER1 be present at the different times of the tasks **T.1.6., T.1.11., and T.1.12.** which will be performed in different months and years.
IMPACT (WP1 and WP2): the splitting and readjusting of the periods has a positive impact on the project since they provide the necessary flexibility to be present in the companies at the right moments, taking into account the tasks schedule changes.

(5) Simone Donati and Marco Piendibene have exchanged between themselves the two remaining months to be completed at PRIELE, since, after the first experience, we understood the work to be done there is more suited for Marco (engineer, expert of hardware) than Simone (physicist expert of software). Marco has to complete 10 days from the previous secondment, that was stopped in advance for family motivations (with the agreement of the PO) plus 60 extra days, for a total of 70 days, that we proposed to divide into 4 future travels, each one of 15 or .20 days, placed strategically at board production time.
IMPACT (WP1): positive impact since the future work requires an engineer expert of HW, much more than SW expertise.

(6) A set of other minor changes have been approved for the PRIELE company that requires “not more than a research be out of the company at the same time for IAPP” and AUTH personnel, to satisfy the teaching constraints of professors at AUTH: (a) The researcher Mermikli has delayed the stay in Pisa of a couple of months to avoid overlap with Dimas at AUTH, and she has split the stay at CERN into 2 periods of one month each, moving them to the last two years. (b) Sakellariou has swapped his stays in Pisa and AUTH: he will be in Pisa at the 2nd year to complete the SLP2 design with Cadence (task T.1.2) and will go AUTH the third year to design a SLP1 prototype (T.1.7) based on Gentsos PHD results. (c) Sampsonidis has adjusted the period to June-July 204 instead of July-August to avoid CAEN closure in August.

IMPACT (WP1, WP3 and WP4): The change at CERN is possible because the commissioning there (tasks **T.3.2.** and **T.3.3.)** will be active up to the end of the project. As described in Annex 1 we are going to be repeat these tasks 3 times, and the software competences of Mermikli will be necessary in each year. Also Sakellariou (WP1) change is beneficial for the project, as explained above. Sampsonidis (WP4) change is small and it has no impact.

Dr. Lucia Pacillo's e-mails

Subject:
RE: the new Gantt Chart
From:
<Lucia.PACILLO@ec.europa.eu>
Date:
29/07/2013 17:30
To:
<paola.giannetti@pi.infn.it>

Dear Paola,

I agree with the suggested modifications to the GANTT chart.

Best regards,
Lucia Pacillo

Project Officer
European Commission
Research Executive Agency
Unit P4, Marie Curie Host-Driven Actions
COV2 16/020
B-1049 Brussels/Belgium
+32 229 90290
lucia.pacillo@ec.europa.eu

Subject: RE: extra corection that I forgot to mention
From: <Lucia.PACILLO@ec.europa.eu>
Date: 06/09/2013 13:29
To: <paola.giannetti@pi.infn.it>

Dear Paola,

I agree with your proposal to move to the second year the secondment of Dimas Dimitrios to AUTH.

Best regards,
Lucia Pacillo

Project Officer
European Commission
Research Executive Agency
Unit P4, Marie Curie Host-Driven Actions
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+32 229 90290
lucia.pacillo@ec.europa.eu

Further Changes to the Gantt Chart requested at the beginning of 2014 and already approved by REA (e-mail of Dr. Emanuela Marinelli 07/02/2014)

(1) Piendibene secondment to CAEN is late one month, because his daughter was seriously seek, so the duration is reduced at 5 months, instead of 6 months. The missing month has been moved to the secondment starting January 2015.
IMPACT: large contingency is available due to the delays of the AMchip05. A one month delay has no impact on the project.

(2) Dimas asked to move by two months later his secondment to AUTH, because of duties he has with the PRIELE Company. He is also asking to cover a longer period to have the possibility to do 3-4 breaks In the middle of 4 days each, again for PRIELE urgent needs. Similar shifts are requested by Mermikli and Sakellariou in 2014 (one month), for PRIELE needs. This is still compatible with the scientific needs.
IMPACT: no problems, since a large contingency is available due to the delays of the AMchip05.

(3) AUTH recruitment: they have some delay, we expect the person can be recruited for April, but administrative reasons could delay even more the start of the recruitment.
IMPACT: no problems, since a large contingency is available due to the delays of the AMchip05.

(4) The researcher Louisa-Calliope Sotiropoulou was expected to come to CAEN for a 5 months secondment in Viareggio, but she is almost near to finish her PHD (not paid in Greece) so she decided to look for a contract, and for this reason she is not going to do more months, waiting that the year at Tessaloniki after the 2013 secondment will expire (end of July 2014). So Sotiropoulou, after this expiration date (end of July 2014) will exit the IAPP project to search a job outside Tessaloniki, given the fact that Tessaloniki cannot pay her.
IMPACT: no impact, since Sotiropoulou continued to collaborate on the project spending all the needed time (also the periods at CERN) until the end of her task (and PHD thesis).

(5) A new AUTH student (P. Neroutsos) that is doing his Master's degree in FTK and in particular on the AMBSLP firmware for monitoring and debugging, will take the two Sotiropoulou months of the last year and will go at PRIELE at the end of 2014 (task T1.3.). He will get his M.Sc degree during summer. So he will be an ESR, but very experienced of the AMBSLP. We insert him in the Gantt Chart as ESR4.
IMPACT: positive since we inserted in the plan and already experienced person about the task to be executed.

(6) Gentsos secondment to CAEN, expected to start in February, is slightly delayed to the end of February and we proposed to increase the length from 3 months to 5 months before August, and to add other 3 months after August (closure of CAEN) using all the secondment released by Sotiropoulou. This long period would allow Gentsos to complete his PHD thesis, interacting with CAEN and Crescioli that is the maximum expert of Gentsos thesis argument.
IMPACT: positive since it improves the PHD thesis potentialities of Gentsos and the probability to have good results for task T.1.8 (SLP1 firmware) that we can disseminate early to get approval for LHC phase II tracking.

(7) For Crescioli that should overlap at CAEN with Gentsos, we proposed 2 months during spring, but diluted in 3 months, to allow few breaks back in Paris where he has a student to follow. Crescioli following periods have been moved to the periods July-September (2 months diluted into 3 months) for both the 2015 and 2016. These are the best periods to escape duties in the Laboratory, in Paris.
IMPACT: small adjustments to the secondment periods, no real impact.

(8) The recruitment in Paris (WP6) is strongly delayed by the fact that the selected person has a permanent position and his Institution didn't yet give him the permission to go to Paris. It is an administrative delay. The hope is that he can go to Paris in March or April as the latest time.
IMPACT: the WP6 has very large contingency since it is activity for LHC phase II expected to happen after 2020.

Dr. Emanuela Marinelli's e-mail

Subject:
revised Gantt
From:
<Emanuela.MARINELLI@ec.europa.eu>
Date:
07/02/2014 12:15
To:
<paola.giannetti@pi.infn.it>
CC:
<mauro.dellorso@pi.infn.it>

Dear Dr Giannetti,

I have no objections to your proposed changes to the Gantt chart.

However, please keep in mind that where, like in the case of your project, the secondments represent only slightly more than half (ie 51% in your case) of the total human resources you should make sure that all secondments are fully carried out to avoid having ineligible recruitment costs. As you know, the rule is that in IAPPs secondments are compulsory and have to represent at least 50% of all human resources.

Also, please remember to clearly report all these changes in the next reports so we can keep track also for the financial aspects.

In relation to the Declaration of conformity which you need to correct, please send me a separate email request so I can reject it in the system.

Regards,

Emanuela MARINELLI
Project Officer

European Commission
Research Executive Agency
Unit P.4 - Marie Curie Host-Driven Actions

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Further Changes to the Gantt Chart partially reported (happened in the past) partially proposed (for the future) in May-June 2014. Approved by REA (e-mail of Dr. Emanuela Marinelli 14/07/2014)

(1) Dimas (ER5) secondment to AUTH was delayed more, from April to first of June, still for the very important duties he has with the PRIELE Company. He is also asking the possibility to do 3 periods for a total of 60 days, with long breaks between them, again because of PRIELE urgent needs, expected during the year. He will start his first period in June first 2014; the second period should be in October 2014, and the third one in February 2015. **[The June secondment is activated and is ongoing now].** **The IMPACT** (WP1): it is not relevant, since the firmware activity (T.1.3 SLP2 firmware in ANNEX 1, for WP1), that is Dimas task at AUTH, will be active in 2015 and also at the beginning of 2016. So Dimas can participate even if he delay his presence in AUTH. Production at PRIELE has been delayed by the experiment, so transfer of knowledge can happen with a more relaxed schedule, than what planned at the beginning.

(2) AUTH recruitment (ER9): as expected administrative problems (visa problems, the winner is Japanese) caused extra delays. The start was approved in February for April 2014, while in the Annex 1 was expected to start on February. The recruitment of 24 months **is started at the beginning of June**.
IMPACT (WP1, 3, 4): is acceptable, since also the start of the test activity in AUTH had a delay, caused by the experiment schedule (T.1.7, T.1.8, T.1.11 SLP1 PCB & firmware design, tests for WP1, commissioning for WP3 and simulation and test vector production for WP4)

(3) The secondment of Mermikli (ESR8) had to be approved by Corte dei Conti in Italy. We received a request of additional documents from the Corte dei Conti, so the contract was

not approved in time to start on June first. It has been recently approved for September-October 2014.
IMPACT (WP1): is not relevant, since the software activity, that is Mermikli task at UNIPISA (T.1.12 SLP2 firmware in WP1), will be active in September-October in UNIPISA. Production at PRIELE has been delayed by the experiment, so transfer of knowledge can happen with a more relaxed schedule.

(4) Since the Calliope Sotiropoulou's (ER19) 2 months secondment to PRISMA (ER secondments) have been substituted by Pano's secondments (point 6 of changes approved in February 2014) that is a ESR4 (ESR contracts are roughly half expensive), we asked the possibility to activate in autumn 2014, during Panos secondment, a new secondment of 2 months for Saverio Citraro, that is also ESR, but from UNIPI.
With a similar mechanism, since Christos Gentsos (ESR3) worked at CAEN for 5 months in place of Sotiropoulou (ER19) that was ER, we asked the possibility to use the remaining available money (5 ESR months) at CAEN to activate as much as possible months secondment at CAEN for Panos. These were approved under condition of available money (see Marinelli's e-mail at the end of this section).
IMPACT (WP1, WP2): Saverio is very experienced on the boards that will be produced at PRISMA, so his presence will be beneficial to produce transfer of knowledge. Panos could participate to the integration activity (WP2), after the development/test activity (Wp1). It is important that people which participated to the development and tests, to be part of the integration phase, as described in the Annex 1, where ER19 and ESR3 were since the beginning involved into both WP1 and WP2. In fact Panos at CAEN will see how the hardware he produced works when connected to other boards, and the collaboration at CAEN will profit of the experience of Panos acquired in the WP1 on his specific piece.

(5) Guido Volpi had the UNIPI recruitment contract (ER15 in the Gantt Chart, (started at the end of October 2013) extended to 24 months (approved by Dr. Lucia Pacillo) since UNIPI activates only contracts of an integer number of years, not for 20 months has stated in Annex 1. However Guido will leave the position on December 2014, for personal motivations, after 14 months. Dr. Marinelli approved the movement of the 10 residual months to the second UNIPI recruitment (ER16 in the Gantt Chart).
IMPACT (WP4): the impact on WP4 is not relevant, since Guido will continue to cover his position of responsible of the simulation in the FTK collaboration, even if paid on other funds, so from the scientific point of view of the project, it is not a problem.
IMPACT (WP5): Having a longer contract for the second recruitment has an important positive impact since it offers the main personnel to execute the WP5 plan, not yet activated. The start of the WP5 activity is becoming very important and urgent because the "Image Processing" activity of WP5 is expected to be applied on Smart Cameras, as demonstrated by our invited talk at the conference http://eunevis.org/wasc2014/, so we are very happy to profit of a longer recruitment and an anticipated start of this contract to January 2015, instead of March 2015. The WP5 plan is also important for our interaction with industries that could use on the market our results.
See for example on application we are doing in this sector:
http://ftk-iapp.physics.auth.gr/Dissimination/NewCalls/Prog_Stabile.Alberto_new.pdf

(6) Petrucci decided to leave CAEN just after his secondment at CERN scheduled for July-August-early September. We were approved about doing the secondment at CERN,

even if he will not spend one year in CAEN after the secondment, given the fact that CAEN is ready to take him back for one year if he wants to come back. Petrucci went to CERN to install in the experiment the Power Supply that he designed and built. For the secondments from CAEN to CERN in the future years he would be substituted by Alessandro Iovene. Alessandro Iovene has been part of the IAPP project since the beginning; he is the CAEN member of the General Assembly. Alessandro worked at CAEN for the project, but all the secondments were planned for Petrucci, that was also scientist in charge of CAEN. Alessandro should become Scientist in Charge.

IMPACT (WP2, WP3): the loss of Petrucci has certainly a negative impact on the project since he was a very experienced, creative researcher, having an important role at CAEN in general. However a big part of his IAPP work (the design and first test of the power supply) has been successfully done before he left, and now the work is more standard, being production and repetitive commissioning. If Petrucci could not go to CERN to complete his task, it would have been much worse, since he could not be replaced by other CAEN personnel during summer 2014.

Dr. Emanuela Marinelli's e-mail

Subject: Ares(2014)2335782 - RE: Re::request of approval of new changes to the Gantt Chart FTK 324318 FP7-PEOPLE-2012-IAPP / clarifications request
Date: Mon, 14 Jul 2014 14:18:01 +0200
From: EC ARES NOREPLY <DIGIT-NOREPLYARES@ec.europa.eu>
To: Paola Giannetti <paola.giannetti@pi.infn.it>
CC: Mauro Dell'Orso <mauro.dellorso@pi.infn.it>, "MARINELLI Emanuela (REA)" <Emanuela.MARINELLI@ec.europa.eu>

Sent by MARINELLI Emanuela (REA) <Emanuela.MARINELLI@ec.europa.eu>. All responses have to be sent to this email address.
Envoyé par MARINELLI Emanuela (REA) <Emanuela.MARINELLI@ec.europa.eu> . Toutes les réponses doivent être effectuées à cette adresse électronique.
Dear Dr Giannetti,

In relation to your request please find below the answers to your requests of modification as described in the document *"Further changes to the Gantt Chart partially reported (happened in the past) partially proposed (for the future) in May-June 2014"* :

Point 1: Split secondments for ER5 may be accepted but, you should make sure that the sum of all split secondment periods is equal to minimum 2 months in order for the costs to be eligible.

Point 2: Ok to start June 2014 for ER9.

Point 3: OK

Point 4: You may increase the number of secondments as long as the approved total EU contribution stays the same. Please note that when changing ER months into equivalent ESR months, the calculation should be exact, no rounding should take place (for example, if the result of the change is 1.95 person months, you should not round to 2 person months). Moreover, please remember that the EU contribution cannot be increased to cover any budget differences.

Point 5: Ok, you may use the remaining months from ER15 for a longer recruitment of ER16, as long as the total recruitments of the project remain lower than the total secondments in the project. In order to make use of the

remaining person/months of ER15, ER 16 should be recruited after ER15 has left.

Point 6: As long as MER 14 is still employed by CAEN under the project during the period of his secondment to CERN, he is eligible to carry out the secondment. Concerning Mr Iovene, before he can go on secondment he has to have been employed by CAEN for at least 12 months.

Please make sure you report all changes/deviations to Annex I including the revised Gantt chart in the next reports due (mid-term report and periodic report). In the reports you should also clearly specify for each change when it was approved by REA.

Regards,

Emanuela MARINELLI
Project Adviser

Further Changes to the Gantt Chart approved at the beginning of 2015

SECONDMENTS at PRIELE (light pink in the Chart):

(1) Gentsos secondment at PRIELE of 2016 has been approved to be anticipated at March 2015. This action allows to recover the secondment lost in autumn 2014 and to recover the activity needed to prepare for the SLP1 R&D development and the SLP2 production (WP1).

SECONDMENTS at CERN:

(2) first important change discussed during the Mid Term Review (see page 24 of Paola Giannetti talk at https://agenda.infn.it/conferenceDisplay.py?confId=8768) is the substitution of Petrucci that left CAEN in October 2014 with Alessandro Iovene, that also became Scientist in charge of CAEN. In addition the reduction of the two secondments of Alessandro Iovene from CAEN to CERN. Each secondment was scheduled 2 months and actually Iovene cannot go to CERN more than one month (August) each year. We got the approval for this reduction that is a necessity of CAEN that has lost Stefano Petrucci. In any case Petrucci left the work in a quite advanced status, so Iovene will be able to commission the CAEN power supplies (WP3). The reduction of time has a negligible impact, also because we have been approved to move two secondment months of Kalaitzides Panagiotis that were originally planned to AUTH, to CERN (see point 3 below).

(3) To reinforce the commissioning of the first production at CERN we asked and we have been approved to move to CERN the expected 2015 Kalaitzides Panagiotis secondment from PRIELE to AUTH. Panagiotis will take the two months left free by Petrucci. He is the expert engineer that will coordinate the assembly of boards in PRIELE, so he is a good candidate to reinforce the activity of installation and test at CERN. His HW capabilities are perfectly suited for the CERN activities. In this way Panajotis will overlap Iovene at CERN during July 2015 (WP3).

Dr. Athina Zampara's e-mail

On 23/02/2015 17:09, Athina.ZAMPARA@ec.europa.eu wrote:
Dear Paola,

.....
1) The anticipation of the second secondment of Gentsos is approved. So please make the numbering sequential (1-6).
.....
4) The changes for ER7 are ok (to go to CERN earlier)
.....
Thank you in advance,

Athina