

		<p align="center">ADDENDUM 2 to ATLAS AGREEMENT 548/2016</p>
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\$4700 from T226700	To T541500	18 July 2016
\$9400 from T137900	To T541500	18 July 2016
\$14100 from T275260	To T541500	18 July 2016
\$7700 from T274115	To T541500	18 July 2016
\$12900 from T244600	To T541500	18 July 2016

ADDENDUM 2 to ATLAS AGREEMENT No. 548/2016

Procurement of Readout Test Equipment

BETWEEN

The **ATLAS Inner Detector/ITK Subsystems and Institutions**
 Represented by the ATLAS Resources Coordinator,

on the one hand, **AND**

SLAC National Accelerator Laboratory (SLAC),
 Represented by the US ATLAS project manager,

on the other hand.

CONSIDERING THAT:

- The United States has signed the ATLAS construction MoU (RRB-D 98-44 rev.) and M&O MoU (CERN-RRB-2002-035);
- The US contributes to the Inner Detector (ID) sub-systems and the HL-LHC ITK upgrade;
- SLAC contributes to the Pixel sub-detector and has designed detector readout equipment that are required by the many test stands of the Pixel and Strip silicon detector community for both the continuing maintenance of the current detector, and development for HL-LHC ITK upgrades, and is therefore requested to carry out the work package described hereafter (Article 2.1).

IT IS AGREED AS FOLLOWS:**ARTICLE 1** **SCOPE OF THE AGREEMENT**

- 1.1 The purpose of this Agreement is to define the readout test equipment to be fabricated by SLAC for the test stand needs of the ATLAS ID subsystems and ITK upgrade community as well as readout needs of other ATLAS detector systems, and to compensate US ATLAS for the fabrication costs from the funds provisioned by ATLAS for the detector subsystems and the funds of the ATLAS ITK institutions with requested needs.

ARTICLE 2 **OBLIGATIONS OF THE PARTIES**

- 2.1 SLAC is responsible for fabricating the list of readout test equipment as described in Table 1 below with the listed unit costs. SLAC is also responsible for shipping them to either the requesting institutions, or to CERN for pickup. In the case of shipping to a non-US institution, the receiving institution is responsible for the payment of possible importing tax. The contributions to the cost from the ATLAS subsystems and ITK institutions are defined in Table 2 and Table 3 against the corresponding

component counts requested. For the various optical connection ports on the delivered components, transceivers will *not* be included because the potential variations in preferred usage.

Components	Abbreviated name	Unit cost (US\$)
COB motherboard with DTM (<i>without DPM</i>)	COB	7400
DPM dual-RCE mezzanine	DPM	3700
COB CSC RTM with MTP transceivers and TTC	RTM	1800
HSIO-II mother board + DTM & TTC mezzanines	HSIO-II	4700
Pixel HSIO-II 18 RJ45 I/O port interface	Pixel-I	1500

Table 1: RCE/HSIO readout component description and unit cost.

Institution	HSIO-II	Pixel-I	Sum Cost (US\$)
Argonne National Lab	1	1	6200
Oklahoma State University	1	1	6200
Stonybrook University	1	0	4700
UC Santa Cruz	2	1	10900

Table 2: Component requests and costs by institution for US institutions. The “Sum Cost US\$” column is funds needed at SLAC to execute the production and same amount to be charged to the requesting institution.

Institution	COB	DPM	RTM	HSIO-II	Pixel-I	CERN Team Account	Sum Cost (US\$)
Carleton (Canada)	0	0	0	1	0	T226700	4700
DESY (Germany)	0	0	0	2	0	T137900	9400
IHEP (China)	0	0	0	3	0	T275260	14100
UCL (UK)	0	0	0	1	2	T274115	7700
AFP system	1	1	1	0	0	T244600	12900

Table 3: Component requests and costs by institutions for non-US institutions and subsystems, and the CERN accounts for the cost charges. The “Sum Cost (US\$)” column contains exact charges to each institution and the same amount needed for SLAC to execute the production.

ARTICLE 3 **FUNDING**

- 3.1 The equipment fabrication costs incurred at SLAC during the execution of the work package described in Article 2.1 above amount to a total of \$76,800 (incl. overhead) combining both US and non-US requests listed in Table 2 and Table 3 above. This amount will be paid by the collection of shared contributions from the requesting institutions and subsystems according to Table 2 and Table 3. For non-US institution and subsystem requests, the contributions will be collected through CERN TID according to the amounts and corresponding CERN accounts listed in Table 3, using exchange rate 'B' defined in CET (exact date to be fixed). For the requests in Table 2 from US institutions, the contributed funds are expected to be from each institute's existing funds without subsistence of any dedicated US ATLAS fund for this production. US ATLAS will deduct the agreed amount from the requesting US institution's M&O budget while the institution will use its own designated funding source to compensate internally. US ATLAS is responsible to compensate SLAC for the total amount of \$76,800 needed for the production through the SLAC M&O MPO contract with BNL.

ARTICLE 4 **DURATION OF THE AGREEMENT**

- 4.1 This Agreement is valid until September/30/2016. This agreement supersedes previous signed MOUs and ATLAS agreements on the same round of production.

ARTICLE 5 **CO-ORDINATION AND ADDRESSES FOR CORRESPONDENCE**

- 5.1 All documents concerning this agreement shall bear the reference: "ATLAS Agreement No. 548/16"

5.2 The execution of this agreement is co-ordinated by the following persons:

for the ATLAS Inner Detector subsystems and Institutions:

ATLAS Resource Coordinator, (attn. Fido Dittus)
CERN - Department EP,
CH-1211 Geneva 23,
SWITZERLAND

for the ATLAS HL-LHC upgrade ITK project:

ATLAS ITK Project Leader, (Attn. Steve McMahon)
STFC Rutherford Appleton Laboratory
Particle Physics Department,
Didcot, OX11 0QX,
UK

and

ATLAS ITK Resource Coordinator, (Attn. Soshi Tsuno)
KEK
Tsukuba,
Ibaraki 305-0801,
Japan

for US ATLAS:

US ATLAS Project Manager, (Attn: Srini Rajagopalan)
MS 510A,
Brookhaven National Laboratory,
Upton,
NY 11973-5000.

for SLAC:

SLAC (Attn: Su Dong)
ATLAS Department Head,
Stanford National Accelerator Laboratory,
Menlo Park,
CA 94025-7015

for Requesting Institutions and subsystems:

Institution	Signing Personnel	CERN Account
Carleton University	Manuella Vincter	T226700
DESY	Ingrid Gregor	T137900
IHEP (China)	Joao Guimaraes Costa	T275260
UCL (UK)	Andreas Korn	T274115
AFP system	Michael Rijssenbeek	T244600
Argonne National Lab	Jimmy Proudfoot	
Oklahoma State Univ	Flera Rizatdinova	
Stonybrook Univ	Dmitri Tsybychev	
UC Santa Cruz	Alex Grillo	

Table 4: Signing personnel for requesting institutions and corresponding CERN accounts for non-US requesting sources.

ARTICLE 6 ARBITRATION

- 6.1 Any differences arising in the context of this agreement will be submitted to the ATLAS Spokesperson who will propose solutions in the best interest of the Collaboration.

(F. Dittus)
Resources Coordinator
ATLAS Collaboration
Date:

(S. McMahon)
ITK Project Leader
ATLAS Collaboration
Date:

(S. Tsuno)
ITK Resource Coordinator
ATLAS Collaboration
Date:



(S. Rajagopalan)
Project Manager
US ATLAS
Date: Sep 29, 2016

(Su Dong)
Team Leader
SLAC ATLAS group, US
Date:

(M. Vincter)
ATLAS Group
Carleton University
Canada
Date:

(I. Gregor)
ATLAS Group
DESY
Germany
Date:

(A. Korn)
ATLAS group
University College, London
UK
Date:

(J. Guimaraes Costa)
ATLAS Group
IHEP, Beijing
China
Date:

(M. Rijssenbeek)
ATLAS AFP system
Date:

(J. Proudfoot)
ATLAS Group
Argonne National Laboratory
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Date:

(F. Rizatdinova)
ATLAS Group
Oklahoma State University
USA
Date:

(D. Tsybychev)
ATLAS Group
Stonybrook University
USA
Date:

(A. Grillo)
ATLAS Group, SCIPP
UC Santa Cruz
USA
Date: