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LABORATORY

Level-2 Milestone 5213: CTS-1 Contract Award Completed

Milestone Report for NNSA HQ

*Prepared by Matt Leininger
September 24, 2015*

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Introduction

This report documents the fact that the first commodity technology (CT) system contract award, CTS-1, has been completed.

The description of the milestone is:

Based on Tri-Lab CTS-1 process and review, LLNL successfully awards the procurement for the next-generation Tri-Lab Linux CTS-1.

The milestone completion criterion is:

Signed contract.

The milestone was completed on September 24th. 2015.

CTS-1 Contract Award Description

The CTS-1 procurement process started in October 2013 with a market survey phase that allowed the Tri-Labs and vendor to discuss information critical to CTS-1. This market survey phase overlapped with and contributed to the development of the CTS-1 RFP. The CTS-1 RFP was released as a DRAFT in October 2014 and formally released in February 2015. In April 2015, the Tri-Labs received nine proposals. Proposal evaluation occurred on April 20-21st in Albuquerque, NM and selection was on April 23rd in Livermore, CA. The Tri-Labs conducted contract negotiations with the selected vendor into July of 2015. The Livermore and DOE contract reviews occurred from July to September, resulting in the CTS-1 contract being signed on September 24th, 2015. The LLNS contract for CTS-1 is contract B610317.

CTS-1 Contract Award Summary

The CTS-1 contract award was placed on September 24th, 2015, after nearly two years of effort by the Tri-Lab CTS-1 team. Throughout the entire procurement process, the CTS-1 project was a close Tri-Lab collaboration. This collaboration resulted in a multi-year contract award to Penguin Computing for the procurement of scalable units (SU's) that will be combined into multi-SU systems to meet the capacity computing demands of the ASC program.

The CTS-1 RFP was released to industry as a DRAFT in October 2014 and officially released in February 2015. RFP responses were received in April 2015. The CTS-1 team received nine responses to the CTS-1 RFP. This includes responses from Acme Micro, Amax, Aquila, Atipa, Cirrascale, Cray, HP, Penguin Computing, and WiWynn. The CTS-1 technical team met in Albuquerque, NM on April 20-21st and the buying team met in Livermore, CA on April 23rd. The Tri-Labs selected Penguin Computing and conducted contract negotiations from July to September 2015. The LLNS and DOE contract reviews occurred from July to September and resulted in a contact award to Penguin Computing on September 24th, 2015. The LLNS contract for CTS-1 is contract B610317.

The CTS-1 contract provide an SU architecture based, from Penguin Computing, based on Intel motherboards and Broadwell processors with DDR4-2400 MHz memory. Each node will provide nearly 3.5 GB memory capacity per processor core. The SU's utilize Penguin's Open Compute platform with either air or liquid cooled and either 480V or 208V power distribution. The choice of power and cooling is the only difference between Tri-Lab CTS-1 systems. Initial ASC system deliveries are schedule to start in 2QCY2016 with the contract options continuing through 2018. These systems will be generally available (GA) to users by 3QCY2016. (4QGFY2016). The highest risk technology for CTS-1 is the high-speed network. For this reason the CTS-1 contract includes an architecture decision point milestone. This milestone has allowed Penguin to provide two high-speed network options. This enables the Tri-Labs to down select to the best value (determined from the technology, schedule, and price risk and benefits) network.

An example SU will have either 162 or 192 nodes (depending on the selected high-speed network), a total of 196-232 TF/s, 21-25 TB memory capacity, 25+ TB/s memory bandwidth, and includes between 5,800-6,900 compute cores. The CTS-1 contract also includes options for GPU/Accelerator enabled nodes, big memory nodes, storage nodes, and NVRAM based options for all nodes.

Attachment 1: Milestone Definition Text

Milestone (ID#5213): Commodity Technology System-1 Contract Awarded		
Level: 2	Fiscal Year: FY15	DOE Area/Campaign: ASC
Completion Date: 9/24/15		
ASC nWBS Subprogram: CSSE		
Participating Sites: LLNL		
Participating Programs/Campaigns: ASC		
Description: Based on tri-lab CTS-1 process and review, LLNL successfully awards the procurement for the next-generation tri-lab Linux CTS-1.		
Completion Criteria: Signed contract		
Customer: ASC		
Milestone Certification Method:		
Signed contract		
Professional documentation, such as a report or a set of viewgraphs with a written summary, is prepared as a record of milestone completion		
Supporting Resources: ASC CSSE and FOUS personnel, LLNL procurement staff		

Attachment 2: Handoff Letter



Lawrence Livermore National Laboratory

September 24, 2015

Memorandum

To: Michel McCoy, ASC Program Leader

From: Matt Leininger

Subject: Completion of LLNL L2 Milestone 5213

I certify that the LLNL ASC Level 2 Milestone 5213 "CTS-1 Contract Award Completed" was completed on September 24, 2015.

The CTS-1 contract award was placed on September 24th, 2015, after nearly two years of effort by the Tri-Lab CTS-1 team. Throughout the entire procurement process, the CTS-1 project was a close Tri-Lab collaboration. This collaboration resulted in a multi-year contract award to Penguin Computing for the procurement of scalable units (SU's) that will be combined into multi-SU systems to meet the capacity computing demands of the ASC program.

The CTS-1 RFP was released to industry as a DRAFT in October 2014 and officially released in February 2015. RFP responses were received in April 2015. The CTS-1 team received nine responses to the CTS-1 RFP. This includes responses from Acme Micro, Amax, Aquila, Atipa, Cirrascale, Cray, HP, Penguin Computing, and WiWynn. The CTS-1 technical team met in Albuquerque, NM on April 20-21st and the buying team met in Livermore, CA on April 23rd. The Tri-Labs selected Penguin Computing and conducted contract negotiations from July to September 2015. The LLNS and DOE contract reviews occurred from July to September and resulted in a contract award to Penguin Computing on September 24th, 2015, thereby satisfying the requirement of the L2 milestone.

The details of the efforts required to meet this milestone are documented in "Level-2 Milestone 5213 "CTS-1 Contract Award Completed" (September 24, 2015).

A handwritten signature in black ink that reads "Matt Leininger".

Matt Leininger
Deputy for Advanced Technology Projects
Advanced Technology Office, Livermore Computing
Integrated Computing & Communications Department

Cc: File



Attachment 3: B610317 Subcontract Executed

SUBCONTRACT NO. B610317	 Lawrence Livermore National Laboratory Supply Chain Management Department P.O. Box 5012 Livermore, CA 94551
Subcontractor: PENGUIN COMPUTING, INC. Attention: Lisa Cummins 45800 Northport Loop West Fremont, CA 94538 Phone: (888) 736-4846 E-Mail: lcummins@penguincomputing.com	LLNS Contract Administrator: Gary M. Ward Phone: (925) 423-5952 E-Mail: ward31@llnl.gov

Introduction

This is a Fixed Price Subcontract for the delivery and installation of Scalable Units (SU) at Tri-Laboratory sites, integration of those SUs into fully functional clusters / systems, training, and hardware and software maintenance service, as further described herein.

The parties to this Subcontract are Lawrence Livermore National Security, LLC (hereinafter called "LLNS") and the party identified above as the "Subcontractor".

This is a Subcontract under Prime Contract No. DE-AC52-07NA27344 between LLNS and the United States Government (hereinafter called "Government"), represented by the Department of Energy National Nuclear Security Administration (hereinafter called "DOE/NNSA"), for the management and operation of the Lawrence Livermore National Laboratory (hereinafter called "LLNL") and the performance of certain research and development work.

Agreement

The parties agree to perform their respective obligations in accordance with the terms, conditions, and provisions of the attached SCHEDULE OF ARTICLES and any documents referenced or incorporated therein, which together with this Subcontract Signature Page shall collectively constitute the entire Subcontract and shall supersede all prior negotiations, representations, or agreements, whether verbal or written.

PENGUIN COMPUTING, INC. BY: <u>Tom Coull</u> Tom Coull TITLE: <u>President and Chief Executive Officer</u> DATE: <u>9/19/15</u>	LAWRENCE LIVERMORE NATIONAL SECURITY, LLC BY: <u>Gary M. Ward</u> Gary M. Ward TITLE: <u>Contract Administrator</u> LLNL Supply Chain Management Dept. DATE: <u>24 SEPTEMBER 2015</u>
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