

APPROVAL OF PURCHASE IN EXCESS OF \$2,000,000

Vendor: Dell, Inc.
Item: High Performance Computer Cluster (named Anvil)
Amount: \$9,952,154
Department: Information Technology at Purdue (ITaP)
Source of Funds: NSF Grant

Remarks:

ITaP is seeking approval from the Board of Trustees to purchase a high-performance computer cluster called Anvil from Dell, Inc. Anvil is a powerful new supercomputer that will provide advanced computing capabilities to support a wide range of computational and data-intensive research, spanning from traditional high-performance computing to modern artificial intelligence applications. Anvil will significantly increase the capacity available to the NSF's Extreme Science and Engineering Discovery Environment (XSEDE), which serves tens of thousands of researchers across the U.S. and in which Purdue has been a partner for the past nine years. Anvil will enter production in 2021.

By building Anvil alongside its community cluster supercomputers, including the 2020 Bell system being built for the Purdue campus, Purdue will leverage its existing campus computing infrastructure, such as massive storage systems, high-speed networking, and its team of expert ITaP staff that has already deployed 14 large supercomputers since 2008. Purdue's community clusters serve thousands of researchers and students each year.

Anvil will be funded by a \$10 million National Science Foundation (NSF) grant that was recently awarded to ITaP's Research Computing Team. Additional funding from the NSF will support Anvil's operations and user support.

Additional Information:

The NSF grant solicitation (NSF 19-587) required designing and proposing a next generation supercomputer. No other vendors were considered because Dell is the only vendor capable of providing the required parts to build Anvil. Also, Dell is the only vendor that partnered with ITaP to incorporate future products into a coherent architecture for the supercomputer:

- **Processors:** Dell will be the first vendor shipping Advanced Micro Device Milan processors in early 2021.
- **Storage:** Dell and Data Direct Networks partnered to bring a next-generation file system that is expected to be available in mid-2021 and will provide the necessary performance within the proposal's budget.
- **Cooling:** Dell is the only vendor capable of shipping direct, liquid cooling technologies for these hardware platforms before the production date required by the grant.