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Spain, Nvidia plan GPU and ARM-based exascale supercomputer

EETimes - The Barcelona Supercomputing Center (BSC) has announced it will develop a hybrid supercomputer based on Nvidia Corp.'s Tegra ARM CPUs and the firm's CUDA-supporting Tesla GPUs, with hopes of reaching exascale performance.

> *BSC believes its prototype system will be the world's first ARM-based CPU/GPU supercomputing combination. The center says it is aiming for a two to five times improvement in energy efficiency compared to today's most efficient systems in the short*

term, with the ultimate goal of reaching exascale using 15 to 30 times less power than current supercomputer architectures.

The EU Montblanc project site One exaflops is expected in 2020. Based on a 20 MW power budget, this requires an efficiency of 50 GFLOPS/Watt. This new project is coordinated by the Barcelona Supercomputing Center (BSC) and has a budget of over 14 million Euros, including over 8 million Euros funded by the European Commission.

"In most current systems, CPUs alone consume the lion's share of the energy, often 40 percent or more," said Alex Ramirez, leader of the Mont-Blanc Project. "By comparison, the Mont-Blanc architecture will rely on energy-efficient compute accelerators and ARM processors used in embedded and mobile devices to achieve a four- to 10-times increase in energy-efficiency by 2014." Nvidia's director of Tesla marketing, Sumit Gupta, said the idea of ARM playing in the supercomputing space was not as far-fetched as some would believe, however, especially not now that ARM CPUs are already being tried out experimentally in cloud servers. Gupta alluded to the importance of Calxeda's initiative with Hewlett Packard Co., important not just in terms of concept, but because HP's sales volumes are typically large. "ARM is going to happen, no matter what people want or like," said Gupta. "ARM is the future for HPC and the PC." The Barcelona Supercomputing Center also recently deployed Spain's fastest compute cluster with 256 Nvidia Tesla M2090 GPUs and quad-core CPUs, said to deliver a peak performance of 186 teraflops.

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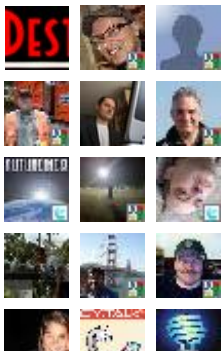

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