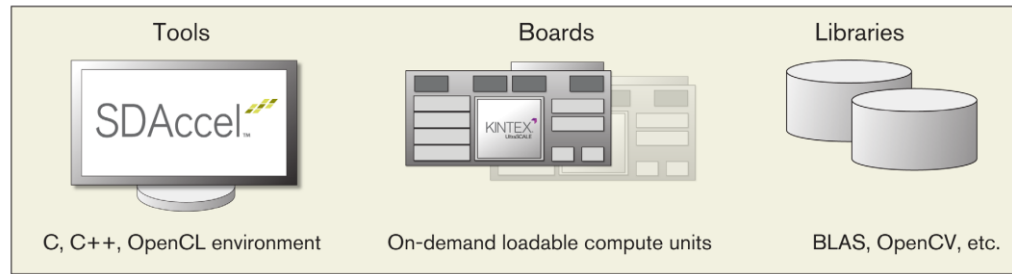


An SDAccel Environment for Rapid Prototyping

Key Components

SDAccel - A Programmer-Ready Platform



Xilinx Virtex 7 chip



Alpha Data PCIE Board



FPGA Testbed Dell R730 (2U); SGI C2112-4RP9 (2U)



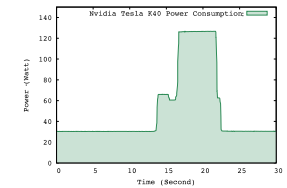
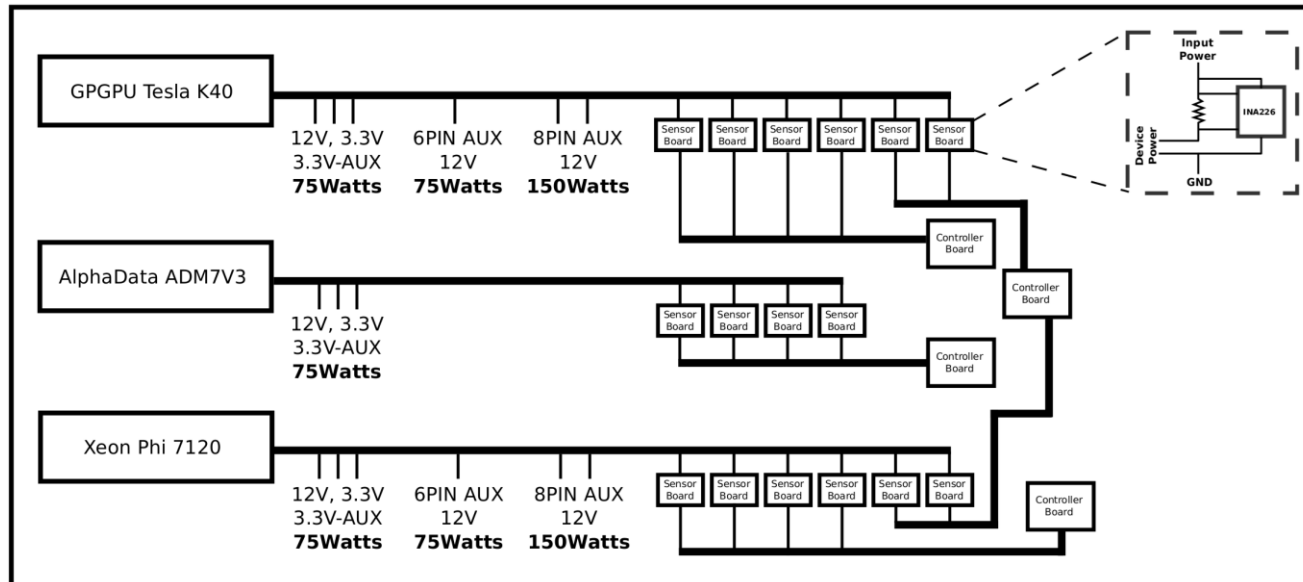
Energy Measurement Infrastructure



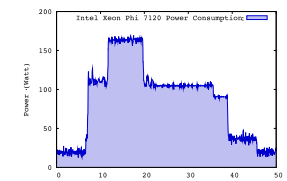
Available to University Researchers

For access enquiries please contact: michael.lysaght@ichec.ie and michaela.blott@xilinx.com

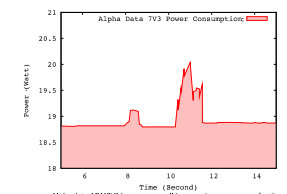
A System for Energy Measurements on Accelerators



Nvidia Tesla K40 power consumption curve for a 30 second interval. Kernel executes only for a short interval and after that the device goes to idle in approximately a second.



Intel Xeon Phi 7120 power consumption curve for a 30 second interval. Device power state transitions from idle to execution and finally to a low power state in gradual steps.



Alpha data ADM7V3 has a very small increase in power usage for the brief duration when it executes a kernel.

SEMA

- Using SEMA, we can accurately measure both the performance and energy consumption of a given application running Intel Xeon Phi 7120, Nvidia Tesla K40 and an Alpha Data ADM7V3
- SEMA is made up of multiple Texas Instruments INA226 current shunt monitors which measure device power rails with built-in delta-sigma ADCs that can sample at 500 KHz
- SEMA sensors measure the power for the 3.3V and 12V rail from the motherboard and the multiple external 12V power connector
- SEMA sensors are polled at 10khz and samples are recorded at millisecond intervals
- Evaluated with the OpenCL SHOC L1 benchmark
- Working on offering this platform in the form of a HaaS model

contact: servesh.muralidharan@ichec.ie

An SDAccel Environment for Rapid Prototyping

