BeagleBone For Embedded Control System Applications

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The BeagleBone embedded platform
• Small, flexible, powerful System-On-Chip
• Wide set of low level I/O (GPIO, SPI, ADC, DAC…)
• Ethernet
• USB
• High level operating system (Linux)
• Long-term availability and support (10Y)
• Low cost

Power Supply Controller
• Upgrade program aims at replacing the old VME controllers while maintaining the original power supply power circuits and control interface
• Linux + TANGO
• 24 bit SPI ADC + voltage reference
• 20 bit SPI DAC + dual voltage reference
• 22 digital inputs
• 6 digital outputs
• SPI managed by PRUSS real-time subsystem
Tip-Tilt Controller
• Feedback to keep the optical path of a laser beam stable
• CCD sensors and piezoelectric mirrors as actuators
• UDP-driven in real-time

• two channel 18 bit DAC
• full galvanic isolation
• parasitic capacity to ground ~ 10pF
• output amplifier peak current 200mA
• output amplifier analog bandwidth 1KHz
• capable to drive up to 10µF capacitive loads
• 0-24V voltage output