# The SLAC Common-Platform Firmware for High-Performance Systems

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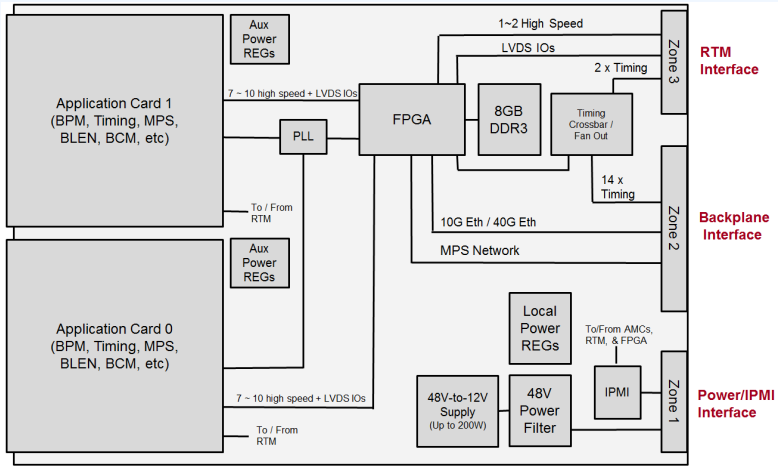
THMPL08

# THMPL08 - Project Goal

- LCLS-II at SLAC will deliver an electron beam at a rate of up to 1MHz
- Several “High-Performance” (LLRF, BPM, MPS, Timing) systems are required to track each individual pulse – synchronously, along the machine
- Need to implement with FPGA technology
- How do we avoid that everyone goes off and “designs their own”?

# THMPL08 - Common-Platform Approach

- Develop a platform that all HPS can use
- Encompasses hardware, firmware and software
- Use COTS ATCA packaging
- 10Gb Ethernet
- SLAC common ATCA carrier board with FPGA, many fast serial links
- Application-specific AMCs (e.g., ADCs)



# THMPL08 - Conclusion

- Common platform has greatly simplified application (BPM, LLRF, …) development
- Fosters “standardization” within the lab
- See THPHA075 (BPM) for a typical “application”
- Still (IMHO): HDL/FPGA much more cumbersome than software