PICMG Ratifies MicroTCA.2® Specification for Rugged Industrial and Military Applications

WAKEFIELD, Mass., June 24, 2013 – PICMG, a leading standards organization for the communications, military and embedded computer industries, announces the adoption of the Hybrid Air/Conduction Cooled MicroTCA® (MicroTCA.2) specification. The PICMG MicroTCA.2 specification addresses the needs of severe shock, vibration, and thermal environments typical of many military air, land and sea as well as rugged industrial applications. The specification defines a modular open systems approach for hardened hybrid air/conduction cooled computer systems. It was developed based on key input from military vendors such as BAE Systems, and includes well-defined test procedures for a consistent reading of vendor compliance.

“We believe that MicroTCA® is a technology that is ideally suited for a VICTORY-compliant small form factor computing platform. Its scalability and flexibility in form factor, cost, built-in redundancy, data throughput, support for two-level maintenance, and robust ecosystem make it an ideal solution for today’s SWaP-constrained military platforms,” stated Mark Leibowitz, chairman of the PICMG Hybrid MicroTCA.2 and MicroTCA.3 Specification Working Groups and chief architect for MCDS Programs at BAE Systems.

MicroTCA.2 modules of all power levels benefit from the hybrid air/conduction cooling (hybrid cooling) approach, in which conduction allows thermal sharing among modules and with the chassis. This thermal sharing effect allows additional surface area to be exposed to the airflow through the chassis to more effectively dissipate the system’s total thermal load.

Forced-air convection yields the dominant cooling effect in MicroTCA.2 systems, yet there is a significant secondary conduction cooling benefit associated with the module clamshell and innovative wedge lock designs. By taking advantage of complementary conductive heat transfer through finned clamshelled module surfaces and aluminum chassis sidewalls, as well as heat sharing between adjacent chassis slots, the MicroTCA.2 hybrid cooling solution effectively provides increased thermal margin over other MicroTCA modes in environments with higher ambient air temperature or decreased airflow.

For example, at a flow condition of 6.7 CFM per slot, an AdvancedMC Single Module dissipating 51.6 watts of power recorded a 6.6° C reduction in component temperature—a 33% component temperature benefit—using the MicroTCA.2 hybrid cooling approach compared to the performance of a standard MicroTCA.0/MicroTCA.1 forced air-only solution.

PICMG’s MicroTCA air cooled specification was adopted in 2006 and enables AdvancedMC products to be integrated in a passive backplane architecture. By reusing AdvancedMC products, MicroTCA systems are much smaller than classic AdvancedTCA architectures. In 2011, PICMG ratified the Hardened Conduction Cooled MicroTCA® (MicroTCA.3) specification. The MicroTCA.2 specification further enables deployments in a wide variety of harsher environments than possible before this latest adoption. Further, a common clamshell design element allows for interchangeability of modules between MicroTCA.2 and MicroTCA.3 chassis.

About PICMG

Founded in 1994 as the PCI Industrial Computer Manufacturers Group, PICMG is a consortium of over 250 companies that collaboratively develops open specifications for high performance telecommunications, military and industrial computing applications.

For information about PICMG membership, or to find out how to obtain PICMG specifications, visit the PICMG website at http://www.picmg.org or call PICMG headquarters at (781) 246-9318.