

Peripheral guidance for compatibility-challenged COM Express designs

Q & A with Jeff Munch,
COM.0 Carrier Design Guide Subcommittee

Consortia crossfire

Editor's note: PICMG's COM Express standard offers designers flexibility in power sequencing, I/O definition, and other criteria, allowing the highly integrated off-the-shelf building blocks to be used in a variety of embedded computing applications. But this freedom of choice can limit the interchangeability from one vendor's carrier board to another's. A recently formed PICMG subcommittee that includes several small form factor manufacturers is endeavoring to increase compatibility among COM Express modules from various vendors by defining a set of carrier design guidelines that enable plug-and-play support. Jeff Munch, ADLINK CTO and chairman of the COM.0 Carrier Design Guide Subcommittee, took a moment to enlighten PC/104 and Small Form Factors about the design guide and how it will advance the adoption of COM Express.

EDITOR: How was this effort initiated, and who are the key players?

MUNCH: After PICMG released the COM Express specification (COM.0), manufacturers flooded the marketplace with a variety of COM Express modules, which led to a proliferation of carrier board incompatibilities. To mitigate these issues and help OEMs achieve module interchangeability, ADLINK Technology, Ampro Computers, and congatec AG launched the COM Express Plug-and-Play Initiative in April. Then, to further address these incompatibilities and provide a definitive carrier board design specification, ADLINK Technology, congatec AG, and MSC Vertriebs GmbH joined forces to form a new PICMG subcommittee dedicated to creating a COM Express Plug-and-Play Design Guide.

Later, it was determined that a more descriptive name would be better suited since the term *plug-and-play* evokes memories of the ISA and PCI Plug-and-Play Initiatives. Thus, the name of this subcommittee was recently changed to COM.0 Carrier Design Guide.

EDITOR: What's the purpose of this subcommittee? What problem is the group seeking to address?

MUNCH: To understand why this subcommittee is being formed, one must



COM 
Express

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look back to the summer of 2005 when PICMG released COM.0. The idea behind Computer-On-Module (COM) is to allow designers to focus on their core competencies – their value-add – not on designing a processor, memory, and peripheral subsystem. A COM provides designers with basic compute blocks and peripherals, such as SATA [Serial ATA], USB, PCI Express, Ethernet, and video in a plug-in module. Designers only need to design a carrier board with their value-added functions and connectors for the COM, then break out the peripherals the COM provides.

The hole in the existing COM.0 specification is in the peripheral breakout and power supply connection. Since designers have core competencies outside the computer and peripherals, it is likely that they lack the knowledge or experience in correctly terminating COM peripherals or using non-ATX style power supplies. Designers also might not know how to use SDVO [Serial Digital Video Out] for flat-panel interfaces or understand the BIOS implications of flat-panel displays. Many areas in peripheral termination design can require specialized knowledge.

EDITOR: What will the Carrier Design Guide entail?

MUNCH: The Carrier Design Guide is expected to provide designers schematic

examples and layout guidelines for these peripheral terminations. In addition, the Carrier Design Guide is expected to provide guidance on how to design legacy I/O devices like PS/2 keyboard and mouse connections, which are not available in COM.0. These guidelines also will benefit COM.0 module designers as peripheral termination will now be recommended, removing the ambiguity surrounding the type of termination that might be used.

EDITOR: *How will the Carrier Design Guide encourage designers to use COM Express?*

MUNCH: In the two years since the COM.0 release, several COM.0 module manufacturers have created carrier design guides outside of PICMG or other standards organizations. Examples can be found at www.comexpress-pnp.org and www.comexpress-extension.com. These dueling design guides have created some confusion in the marketplace as to which one should be used as the authoritative manual. The authors of these two design guides have agreed to provide their documents as input to the PICMG-sanctioned

Carrier Design Guide effort. In the end, the Carrier Design Guide will help ensure that designers using COM.0 will capitalize on the module's functionality and achieve a successful COM Express experience. ➤



Jeff Munch is CTO of ADLINK Technology Inc., chairman of the COM.0 Carrier Design Guide Subcommittee, and chairman of the AdvancedTCA Sub-

committee. He has more than 20 years of experience in hardware design, software development, and engineering resource management. Before joining ADLINK, Jeff spent 5 years at Motorola Computer Group as director of engineering, and previously, 9 years as VP of engineering at Pro-Log.

ADLINK Technology
866-4-ADLINK
info@adlinktech.com
www.adlinktech.com