

Arizona Digital

The Resurgence of VME

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VME systems are gaining (not losing) interest!

- Many companies are defecting from CPCI back to VME
- CPCI hype is being recognized for what it is



Touted Advantages of CompactPCI

- Higher performance
- Lower cost
- Hot swappable
- Run “Intel/MicroSoft” software
 - Quicker time to market
 - Lower software cost



Raw Bandwidth Performance

- CPCI = 66 MHz (533 MB/s)
 - Operates at speed of slowest card in system
 - Clock = integer multiple of 33 MHz
 - Bandwidth limited by delay and skew
- VME = 133 MHz (1066 MB/s)
 - Operates at speed of two fastest cards
 - Clock = fastest agreed speed
 - Bandwidth limited only by skew



Actual Measured Throughput

- VME = good
- CPCI = far below expectations
- Why Performance Disparity?
 - Data Latency
 - Interrupt Structure is Anemic
 - Disconnects



Cost Parity

- VME standard hardware:
 - High volume = low cost
- CPCI custom backplanes:
 - NRE
 - Lower volume = higher cost
 - Delay
- CPCI connectors vs. VME silicon
- Everything else is a wash



Hot Swap Shortfall

- Claiming conformance to a spec is not enough---it must work!
- It can't work:
 - Posted writes (mandatory for performance)
 - Bridges



Windows Software Compatibility

- MS Windows 98/NT Unstable:
 - Embedded systems can't allow crashes
 - Switching to Unix/Linux
 - Therefore, Windows s/w not important
- VME-IP:
 - General Micro Systems, Inc.
 - “Intel/MicroSoft” software runs even faster on VME than on CPCI
 - Multiple platforms
- Last “advantage” of CPCI is gone



Conclusion

- VME will always be faster
- VME has a long life ahead

