Tyco Electronics Powered 4X Mini SAS Proposal
T10/08-435r0

October 31, 2008
Our Commitment, Your Advantage

TE’s new High Density Mini-SAS proposal provides the following advantages to customers using Mini-SAS technology.

- Suitable for next generations of SAS: 6 & 12 Gbps
- PCI bracket compatible
- Pull Tab Latching capability
- Improved Insertion and Return Loss Performance
- Designed for External Fiber Cable Option
- Designed for Active Cable Assembly Option
- Heat sink compatible designs
- Single port or multi-port configurations available
- Various EMI containment options
Physical Information
## External Embedded Fiber and Copper Plug Cable Description

<table>
<thead>
<tr>
<th></th>
<th>Embedded Fiber</th>
<th>Copper</th>
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</thead>
<tbody>
<tr>
<td><strong>Cable Diameter</strong></td>
<td>6.2mm</td>
<td>8.2mm</td>
</tr>
<tr>
<td><strong>Cable Construction</strong></td>
<td>12 fiber</td>
<td>8 Pair</td>
</tr>
<tr>
<td><strong>Cable Bend Radius, min</strong></td>
<td>5x Dia</td>
<td>6X Cable Dia</td>
</tr>
<tr>
<td><strong>Industry Specification</strong></td>
<td>TIA-492AAAC-XBAX</td>
<td>ICEA S-83-596-2001</td>
</tr>
<tr>
<td><strong>Max Cable Length @ 12Gbps</strong></td>
<td>100 Meters</td>
<td>10 (Passive)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30 (Active)</td>
</tr>
<tr>
<td><strong>Power (Watts)</strong></td>
<td>2.0 – 2.5 max</td>
<td>1.5 max (Active)</td>
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</table>
External PCI Compatible Single Port Receptacle with optional EMI Springs

- EMI gasket provide full EMI containment on bezel.
- EMI springs provide full EMI containment on cable plug.
- Accommodates a wide tolerance range between the cage and bezel.

EMI Springs

Surface mount retention features

EMI Gasket
External Single port PCI Configuration

Pull actuation of cable assembly plugs

Pull tab actuator
External Single port PCI Configuration
External Single port PCI Configuration

- Significant reduction in panel to cable clearance requirements
- Elimination of wasted space in plug nose and keying region.
Connector Dimensional Information

- Connector dimensional information is covered in the SFF-8634 specification (ftp://ftp.seagate.com/sff/)
- Contact and interface dimensioning not specified in SFF-8634 is covered by SFF-8086
Powered 4x External Mini SAS

- Powered 4x External Mini SAS extension (External)
  - Uses existing Mini SAS SFF-8086 contact (same P/N)
    - Limited or no additional qualification
  - Increased pin count from 26 to 32 positions
  - Receptacle improvements
    - Offer behind the bezel and through bezel options
    - Use bail style latch
    - Increased cage height allows for powered devices to be inside cabinet
  - Eliminate sidewalls on connector
    - Less chance of stubbing on through-bezel receptacle
    - Eliminate tab feature on plug (reduce expense, reduce damaged/bent plug housings)
  - Fully boxed interface
    - More robust interface.
Pinout Suggestions

• Add 6 positions to existing 26 position, external connector
  – Add EEPROM (I²C) 2 pins
  – Add Vcc₁ and Vcc₂ (3.3V and variable power supply) 2 pins
  – Add 2 additional reserved pins

  – Total of 32 positions
Powered External Proposals

• A unique interface for powered external applications makes sense because...
  – It prevents damage due to mismatched power pin assignments.
  – Older cables may not work at higher data rates
  – Active cables will not work in older systems
  – I2C can be used to properly set pre-emphasis and post equalization values to assure proper operation
Questions?

- For more information or if you have questions you can contact one of the following people.
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