Tyco Electronics Powered 4X Mini SAS Proposal
T10/08-435r1

October 31, 2008

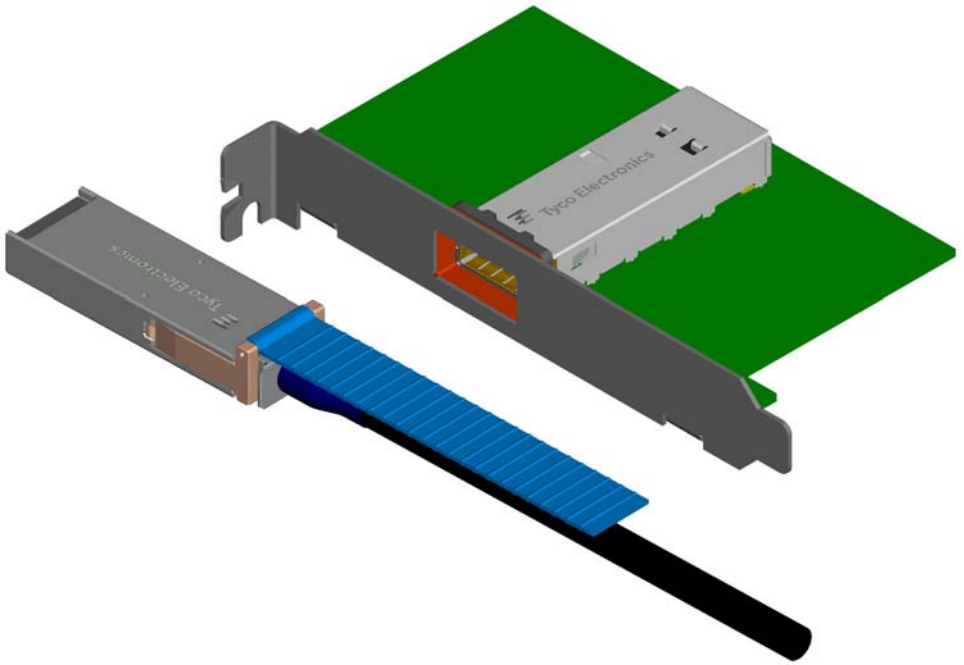
Tyco Electronics

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



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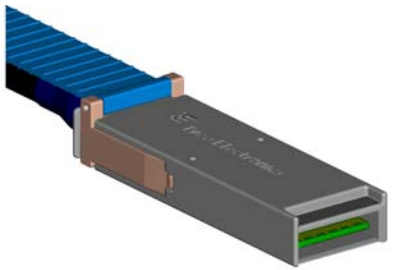
External Embedded Fiber and Copper Plug Cable Description

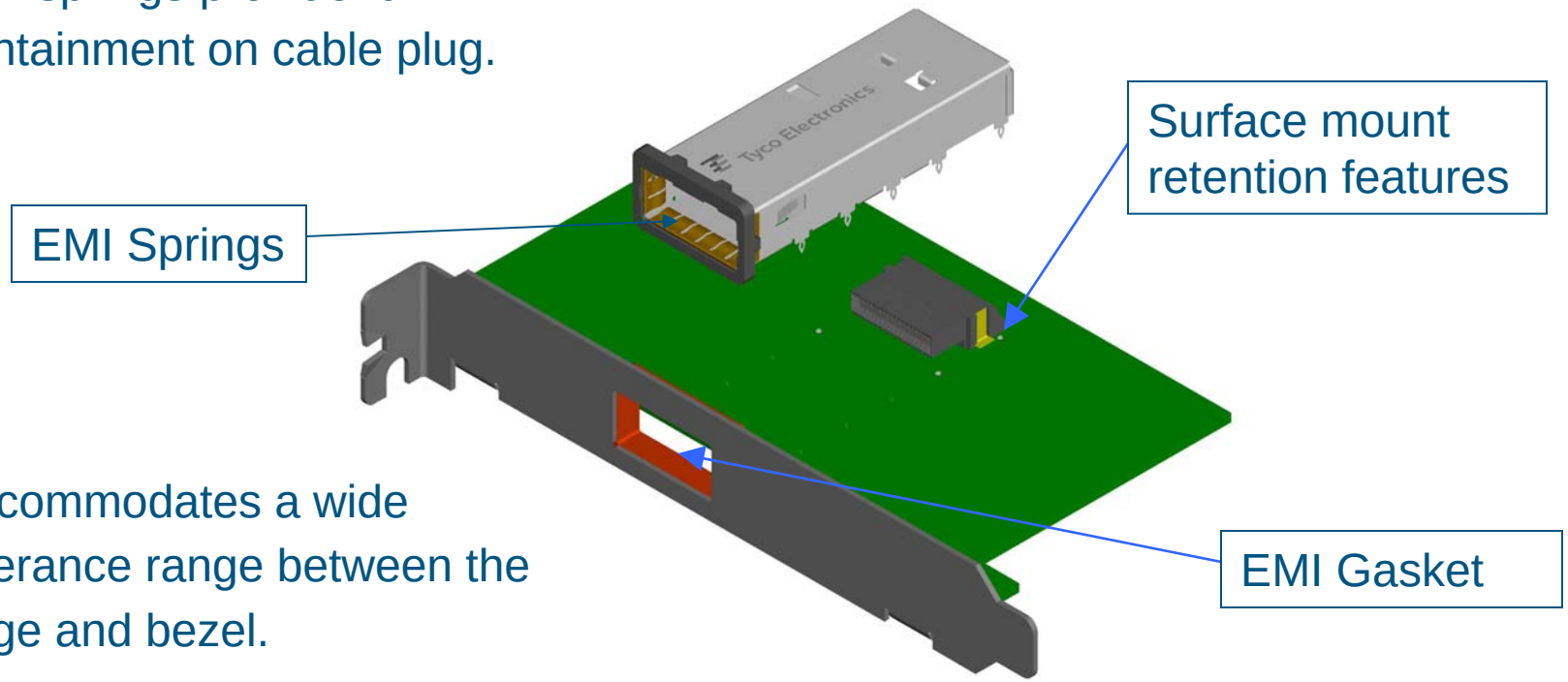
26, 28 and 30 AWG Cable will be available



	Embedded Fiber	Copper
Cable Diameter	6.2mm	8.2mm
Cable Construction	12 fiber	8 Pair
Cable Bend Radius, min	5x Dia	6X Cable Dia
Industry Specification	TIA-492AAAC-XBAX ICEA S-83-596-2001	
Max Cable Length @ 12Gbps	100 Meters	10 (Passive) 30 (Active)
Power (Watts)	2.0 – 2.5 max	1.5 max (Active)

External PCI Compatible Single Port Receptacle with optional EMI Springs

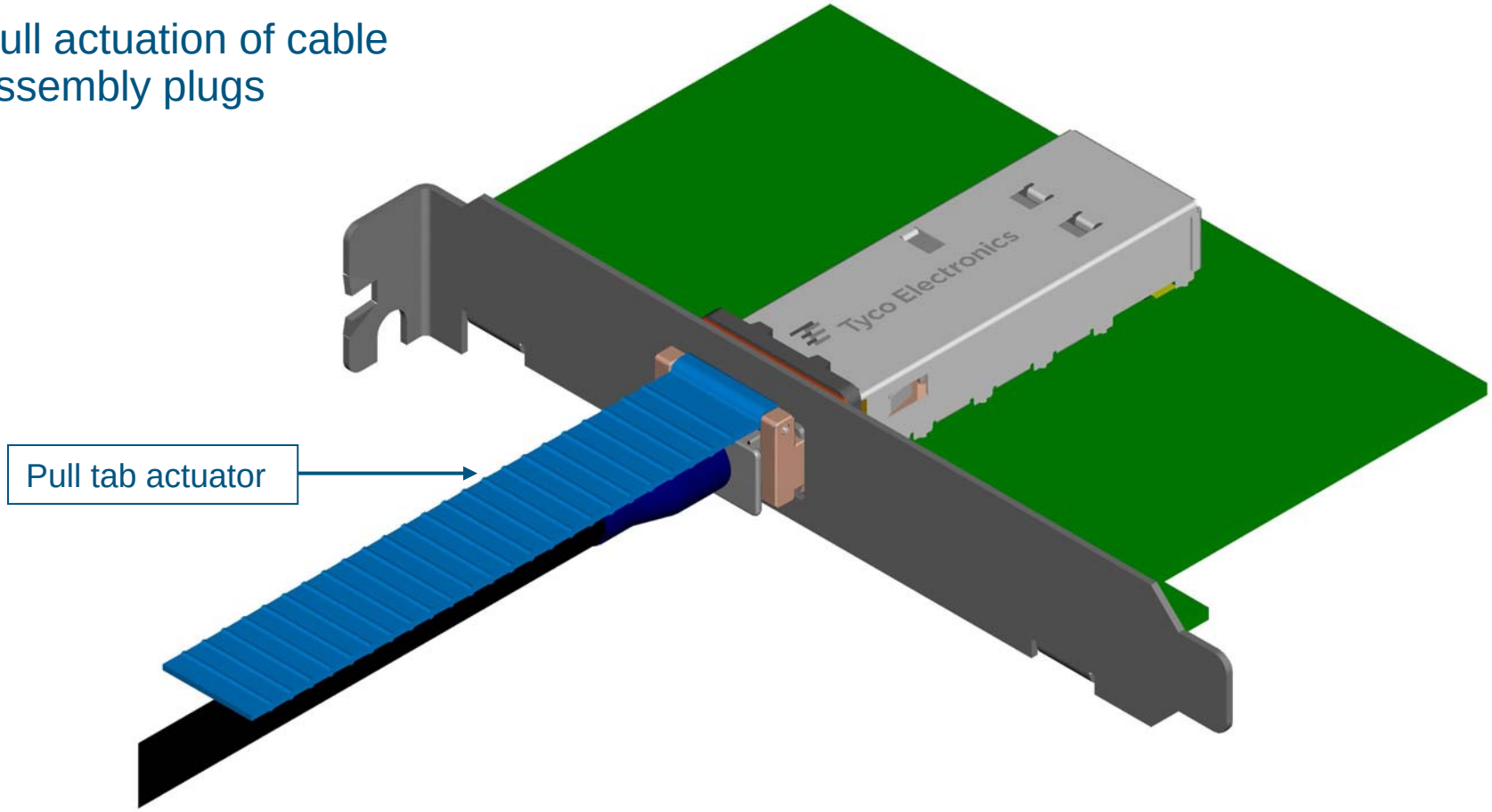
- EMI gasket provide full EMI containment on bezel.
- EMI springs provide full EMI containment on cable plug.



- Accommodates a wide tolerance range between the cage and bezel.

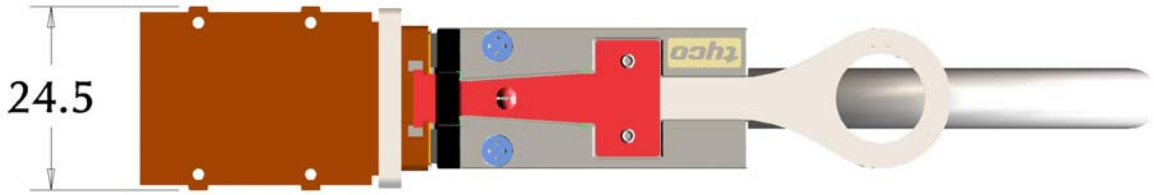
External Single port PCI Configuration

Pull actuation of cable assembly plugs



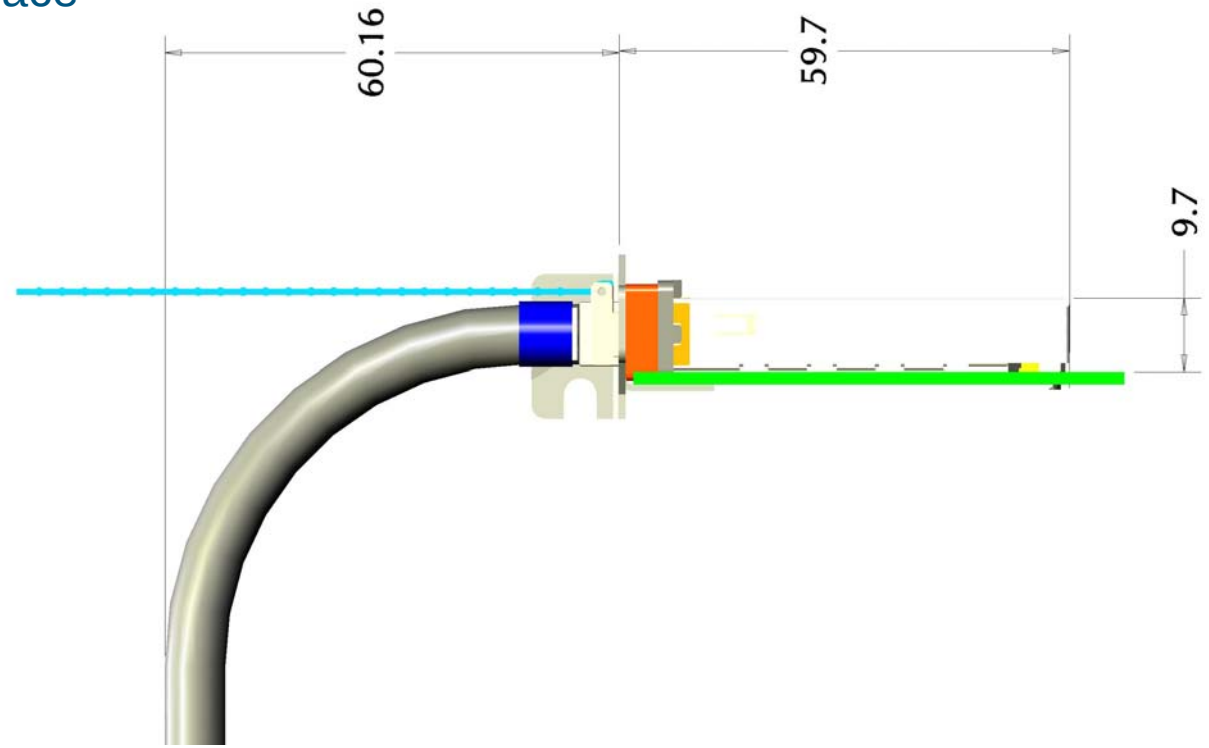
External Single port PCI Configuration

- New Single port powered option is smaller than existing Mini SAS single port width.



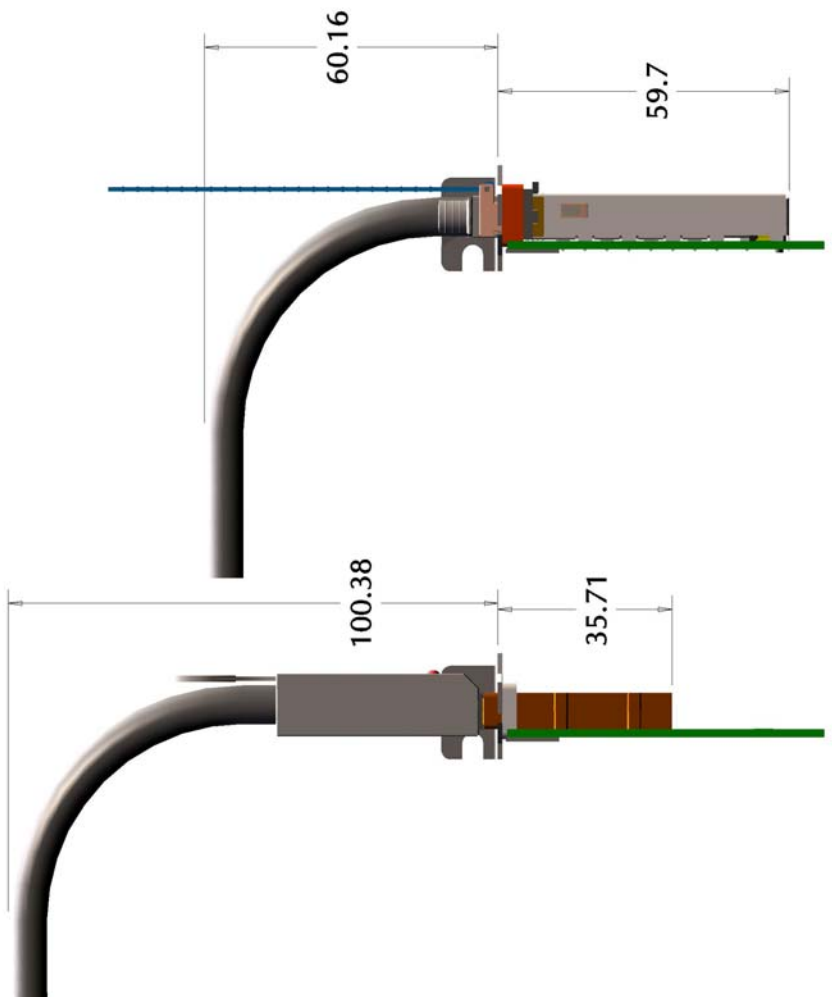
External Single port PCI Configuration

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



External Single Port Comparison to MiniSAS

- Reduced overall length (receptacle + external plug details + cable radius)
- Less stress on receptacle
- All active components contained inside panel



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.

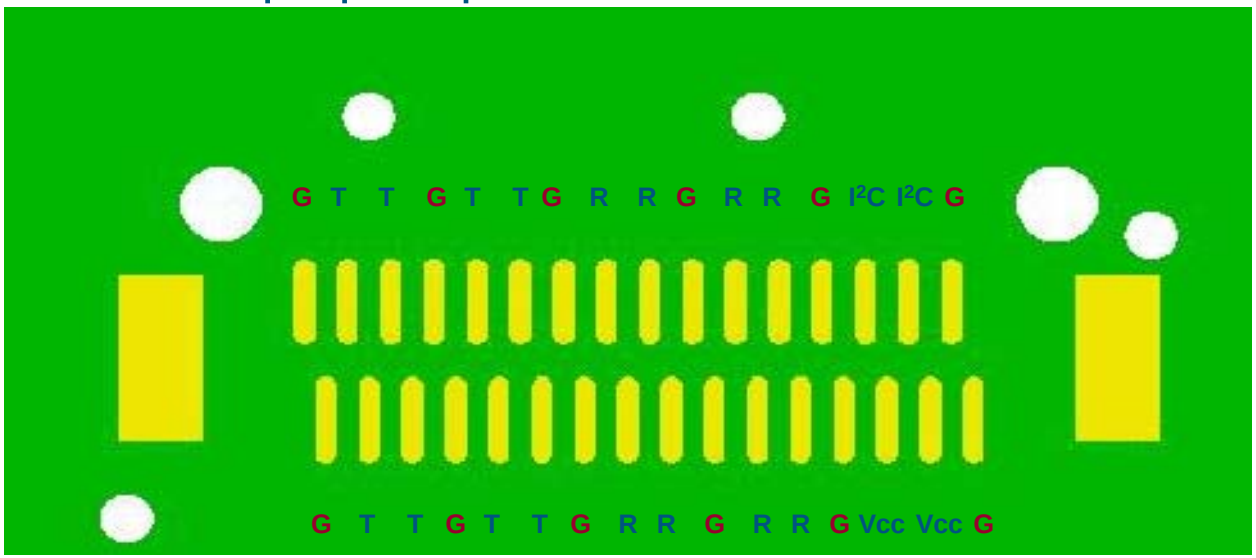
Pinout Suggestions

- Add 6 positions to existing 26 position, external connector
  - Add EEPROM (I^2C) 2 pins
  - Add Vcc_1 and Vcc_2 (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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