



## New Product Release Summary for 3M Authorized Sales Reps and Distributors

# 3M™ Ultra Hard Metric (UHM) Cable Assemblies

Industry's First Fully-Shielded Ultra High Performance Low Crosstalk 2 mm Cable Assemblies  
Introduced by a Major Interconnect Provider

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### Product Description

3M now offers the UHM Cable Assembly, which is capable of up to 12 Gbps for high density, high performance cable-to-board and IO applications. The UHM Cable Assembly is the industry's first known fully-shielded 2 mm hard metric (HM) cable assembly designed for up to 12 Gbps performance when used with industry standard 2 mm HM (IEC 61076-4-101 ) or 3M™ High Speed Hard Metric (HSHM) Backplane Headers.

The UHM Cable Assembly's modular "snap together" wafer design enables cable assembly designs that can be flexibly customized to the specific needs of the application up to 50 high speed differential or coaxial channels per mating connector. Standard 2 mm HM connector based systems can use the UHM Cable assemblies to support IO speeds of up to 12 Gbps. Examples of backplane designs using 2 mm HM connectors are PICMG CompactPCI® 3U and 6U and VITA VME 64x. Using the UHM Cable Assemblies, standard CompactPCI and VME 64x systems can, for the first time, support cable to board Rear IO using multi-gigabit high speed serial IO protocols such as SAS, SATA, Rapid IO, PCI Express and Gigabit Ethernet.

The UHM cable assembly uses unique proprietary "shielded controlled impedance" technology to provide a tightly controlled impedance fully-shielded differential pair (100 ohm or 85 ohm) or single-ended (50 ohm or 75 ohm), low crosstalk transmission path through the cable-to-board transition. Full shielding dramatically reduces crosstalk and while tight impedance control improves insertion loss as compared to a legacy unshielded or strip line shielded 2 mm HM cable assemblies.

The 3M UHM connector series includes the following part numbers:

Part Description	Part Number	Tech Sheet
2 mm, A Type: 110 Signal Contacts, 5 Rows	981717-058-XXX.X-C-1-11-1 (Need 2 assemblies per A style header)	TS2364
2 mm, B Type: 95 Signal Contacts, 5 Rows,	981717-058-XXX.X-C-1-19-1	TS2364
2 mm, B Type: 110 Signal Contacts, 5 Rows	981717-058-XXX.X-C-1-22-1	TS2364
2 mm, B Type: 125 Signal Contacts, 5 Rows	981717-058-XXX.X-C-1-25-1	TS2364
2 mm, C Type: 55 Signal Contacts, 5 Rows	981717-058-XXX.X-C-1-11-1	TS2364

XXX.X = Length of Assembly from tip to tip in inches  
Additional configurations available – see TS2364 for details.

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### Market Segments/Customer Applications

- Embedded Systems – CompactPCI® 3U and 6U computing systems, VME systems
- Military/Aerospace – embedded computing and control systems
- Communications - access equipment, e.g. channel banks, wireless
- Medical – ultrasound systems
- Test and Measurement – e.g. PXI systems

### Summary of Key Features and Benefits

- High-speed cable assembly – up to 12 Gbps for high performance cable-to-board applications
- Full shielding of signals or signal pairs minimizes crosstalk and insertion loss
- Mates to standard 2 mm HM 5-row headers and 3M™ High Speed Hard Metric (HSHM) Headers
- Flexible snap on stacking wafer design allows for design flexibility

### Competitive Situation

Most of our competitors, such as Tyco, Molex, Gore, FCI, offer cable assemblies that can mate to IEC 61076-4-101 standard 2 mm Hard Metric connectors. However, these assemblies are not impedance controlled and are either unshielded or only stripline shielded. This gives the 3M UHM Cable Assemblies a significant performance benefit versus the legacy 2 mm HM Cable Assemblies. The UHM Cable Assembly can support transmission rates up to 12 Gbps while the legacy 2 mm HM Cable Assemblies can only support performance up to 3 Gbps. Further the UHM Cable Assembly supports both differential and coaxial transmission (or mix and match) while the competitor cable assemblies typically support only differential signal transmission.

These are critical and unique benefits in applications where high performance, high density and intermateability to IEC 61076-4-101 connectors is required. The UHM Cable Assemblies can support new high speed serial transmission protocols such as SAS/SATA, PCI Express, USB, Gigabit Ethernet, in very high signal densities, while the competitor assemblies cannot.

### Program Direction and Future New Products

3M is planning to enhance the embedded connector and cable assembly portfolio with Micro TCA, ATCA, PC104/PC104+ and other complementary connectors in the near future.

### Pricing and Samples

Pricing is available on Price Pages for standard length cable assemblies (0.5m and 1m)  
Standard length samples for the following part numbers will be available in the 3M sample room (via online ordering) - 981717-058-19.7-C-1-04-1, 981515-027-19.7-C-1-04-1, 981717-058-39.4-C-1-04-1, 981515-027-39.4-C-1-04-1. For all other samples, please contact [ISD\\_Samples@mmm.com](mailto:ISD_Samples@mmm.com)

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## 3M™ Ultra Hard Metric (UHM) Cable Assemblies

### Sales Support Materials

- Technical data sheets (see table on previous page for details)
- Sales sheet
- Cable assembly 3D models (available on request)
- Target account list
- Samples (available shortly after product launch)
- Sales presentation
- Signal integrity report (available on request)

### Frequently Asked Questions

**Q: What does the UHM Cable Assembly mate to?**

A: All 3M or competitor's IEC 61076-4-101 compatible headers should mate to the 3M UHM Cable Assemblies. The 3M connectors are available as the CP2 connector series (5-row) or HM series (5-row and 8-row). The 3M™ High Speed Hard Metric (HSHM) Headers will also mate to the 3M™ Ultra Hard Metric (UHM) Socket Connectors.

**Q: Are custom lengths available?**

A: Yes – you can define the part number you need using the length field.

**Q: Are we going to offer an 8-row version of the UHM Cable Assembly?**

A: The current plan is to offer the 8-row version only with an NBO. Most of the volume is expected for the 5-row offering.

**Q: Why is this cable assembly called the UHM Cable Assembly?**

A: Because similar to 3M's UHM socket connector, this cable assembly mates to IEC 61076-4-101 2 mm HM headers from 3M and competitors and also the 3M HSHM headers - while supporting a 12 Gbps performance which is much higher than legacy 2 mm cable assemblies.

**Q: Who are typical customers for the UHM Cable Assembly?**

A: Typical customers are designers of:

- Embedded Systems – CompactPCI® 3U and 6U computing systems, VME systems
- Military/Aerospace – embedded computing and control systems
- Communications - Access equipment, e.g. channel banks, wireless
- Medical – ultrasound systems
- Test and Measurement – e.g. PXI systems

Also note that UHM socket connector prospects and customers are also prospects for the UHM cable assemblies.

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### Product Features/Advantages/Benefits

Features	Advantages	Benefits
High-speed cable assembly – up to 12 Gbps for high performance cable to board applications	High performance for demanding applications	End users can support a wide range of demanding applications and next generation serial protocols (SAS, GigE, PCI Express) while remaining backward compatible with 2 mm HM based designs. End users can future proof designs to handle ever increasing performance requirements
Full shielding of signals or signal pairs and controlled impedance design	Minimizes crosstalk and insertion loss	Enables a high density of channels for high speed applications
Mates to standard 2 mm HM 5-row headers and 3M HSHM headers	Intermateable with industry standard 2 mm hard metric designs	Enables simple and easily routable 2 mm hard metric (CompactPCI® and VME 64x) designs, which many designers prefer, to perform at high speeds
Flexible snap on stacking wafer design allows for design flexibility	Supports a large number of form factors without customization	End users can adapt the UHM cable assembly to various designs without experiencing the high cost and long lead times of custom interconnects

### Contact Information

For information in the USA, please contact: *3M Customer Service, phone: 800-225-5373*

For information outside the USA, please contact your local 3M Subsidiary. A directory of 3M Subsidiaries can be found here: [http://www.3m.com/us/electronics\\_mfg/interconnects/sales\\_contacts/index.jhtml](http://www.3m.com/us/electronics_mfg/interconnects/sales_contacts/index.jhtml)

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