



DARK ENERGY
SURVEY

DES

FE Electronics Brief Status Update



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Readout Crate Update

- Monsoon#3 delivered to SiDet
 - low noise with emulator ~4.2 ADU rms
 - no computer, no MCB (MCB is being used for S-Link tests)
- All 8-Ch Acq boards made “the same”
 - previously two original boards/two new boards required different csv files
 - required a small hardware change (effected rails of bias DACs) and update of csv file



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Other news

- 2nd 12-ch Monsoon board is assembled; Dave will begin checkout soon
- 12-ch board Transition module checks out so far
 - we have built a fanout board (expected back soon) to
 - help inject signals through new cables
 - connect to RTDs so we can test RTD readout
 - monitor bias levels
- 2nd version of VIB in layout
 - can readout up to 10 CCDs
 - will plug into new cables used for clocks, bias, RTD and video signals
- New 2-layer kapton cable out for manufacture
- new design for CCD_Interface differential driver in layout
- new design for VIB_interface differential driver in layout

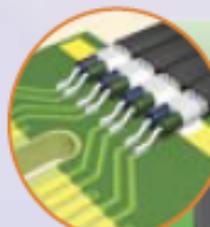
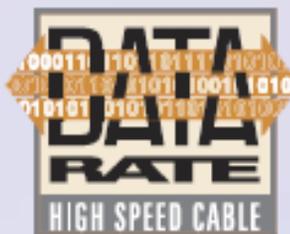


New cables used for RTD, Bias, Video

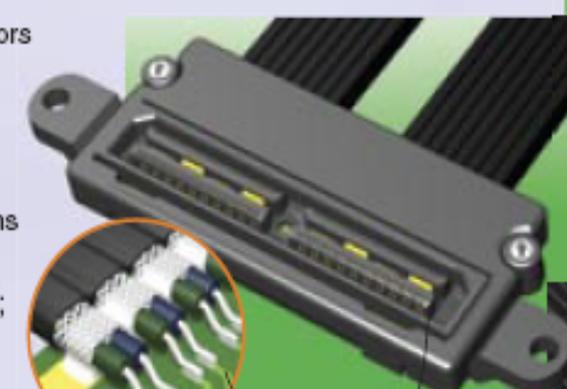
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Twinax Data Rate™ Cable

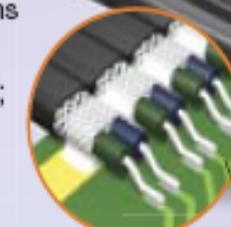
- 30 AWG ribbon twinax cable
- 100Ω Differential Pair signal routing
- Choice of terminations:
 - Edge card
 - High speed connectors on 0,5mm, 0,635mm and 0,8mm pitch
 - Shielded High Speed Connectors on 0,635mm pitch
- Vertical or edge mount termination to cable
- Locking & Latching options
- Shielded and unshielded versions
- Optional screw downs
- Low skew (pair-to-pair < 10 ps/ft; within a pair < 5ps/ft)
- Superior EMI Performance (FCC Class A)
- Contact hdr@samtec.com for custom Signal Integrity specifications



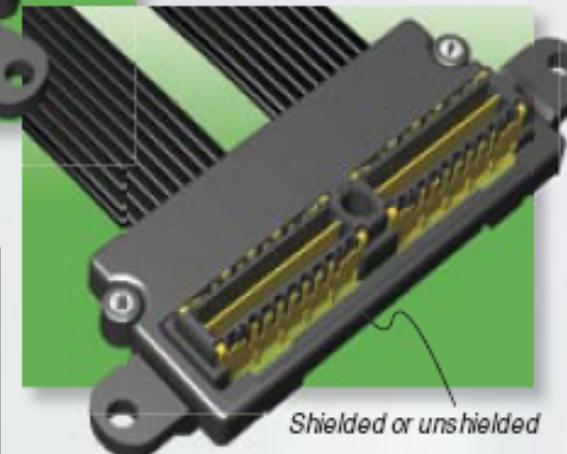
Latching and screw systems available



Edge Card



30 AWG 100Ω twinax High speed connectors



Shielded or unshielded

| Twinax Data Rate™ Cable Assemblies Rated @ -3dB Insertion Loss | | | | |
|--|----------------------|----------------------|----------------------|----------------------|
| SERIES | EQDP | HODP | EEDP | 60DPS |
| PITCH | 0,8 mm | 0,5 mm | 0,8 mm | 0,635 mm |
| MATES | QTE-DP/QSE-DP | QTH-DP/QSH-DP | HSEC8 | QMSS-DP/QFSS-DP |
| 12" (304,8mm) | 4.74 GHz / 9.48 Gbps | 2.12 GHz / 4.24 Gbps | N/A | 1.86 GHz / 3.72 Gbps |
| 19.68" (0.5m) | 4.46 GHz / 8.92 Gbps | 1.64 GHz / 3.28 Gbps | 2.85 GHz / 5.70 Gbps | 1.58 GHz / 3.16 Gbps |
| 39.37" (1m) | 1.59 GHz / 3.18 Gbps | 1.37 GHz / 2.74 Gbps | 1.15 GHz / 2.30 Gbps | 1.25 GHz / 2.50 Gbps |



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Clock Cable

LFH™

The Low Force Helix (LFH) contact was designed for high-pin count signal applications where there is a need for reliability and performance. Designed for both cable-to-board and board-to-board applications, the system's low insertion forces make it ideal for situations where multiple single lines need to be terminated or packaged in a limited space.

The patented "helix" plug pin interfaces with a split-beam receptacle contact giving a low insertion force with 2-point contact reliability.

Circuit sizes range from 60 to 200 circuits in the Matrix 50 system and 96 and 130 circuits in the Matrix 75 system. Both systems feature I/O shielding and support vertical and right angle board mounting.

See the [LFH terminal mating](#) in action. Other features of the LFH system include optional hardware for docking applications, use with various wire types (26-36 AWG), and compatibility with high-speed applications. Wires are welded or soldered directly to the terminals sticks for dependable cable termination. The LFH [Application Tooling](#) page offers more information on the cable termination and assembly tooling available.

For information on cable assemblies, contact shieldcable@molex.com.

