Overview
The DMD1050 T-L Band Satellite Modem board offers a complete modem with FIPS certified TRANSEC on a compact PCB daughter board. The embedded TRANSEC capability is fully compatible with the TRANSEC capabilities in Comtech EF Data's DMD2050E and SLM-5650A Satellite Modems. The compact size is engineered to be a drop-in replacement option for the TDMA modem card in many current fly-away terminals. The conductively cooled design enables fly-away terminal vendors to meet demanding outdoor environment requirements without the need for fans or custom heat sinking design. With standards including MIL-STD-188-165A, IESS-308, -309, -310, -314/315 and DVB, and covering data rates up to 20 Mbps, the DMD1050T covers virtually all your satellite IP, telecom, video and Internet applications.

The extensive list of integrated hardware and software options give you the ability to integrate the modem on many platforms and provide an upgrade path for future networks. Options may be purchased with the product or easily upgraded in the field through the web browser or terminal port.

The DMD1050T has an impressive remote accessibility line-up. Remote control via serial RS-232, 10Base-T SNMP Ethernet or web browser interfaces allow for monitor and control of all the modem's features.

Both serial and bridged mode Ethernet interface compatibility with current modems, such as the CDM-570A, CDM-570AL, CDM-570, CDM-570L, CDM-625A, CDM-625, DMD20, DMD50, DMD2050, DMD2050E, and SLM-5650A are maintained for seamless substitution and addition to your existing systems.

The DMD1050T modem board integrates supporting hardware for BUC and LNB. Interconnects allow the user to supply external voltages and 10 MHz Reference for BUC and LNB.

Published specifications reflect the maximum DMD1050T performance. Each DMD1050T can be configured to customer requirements via hardware / software options applied at the factory or in the field.

Features
- MIL-STD-188-165A compliant
- Compact size 1.442” x 6.675” x 9.125” (mounting holes aligned with competing TDMA modem card)
- Conductively cooled design
- TRANSEC Module, FIPS-140-2 Level 2 certified
- 950 to 2050 MHz L-Band TX/RX
- Built in MIL-188-114A and Ethernet data interfaces
- BPSK/QPSK/OQPSK/8PSK/8QAM/16-QAM modulation
- 2.4 kbps to 20 Mbps, 1 bps steps
- FEC – Viterbi, Reed-Solomon, Sequential, Trellis, Turbo Product Code (TPC) and Low Density Parity Check (LDPC)
- Direct Sequence Spread Spectrum (Tx Only)
- Optional 10 MHz high-stability reference
- Input connectors for BUC and LNB voltages
- Excellent spurious performance
- Fully compliant with IESS-308/309/310/314/315
- Optional DVB to EN301-210 and EN300-421
- Standard features include: Reed-Solomon, Asynchronous Overhead and Automatic Uplink Power Control
- M&C options include SNMP, Web browser & RS-232 terminal ports
- TPC FEC
- 16QAM
- DVB-S

Software Options
- Data Rate upgrades
- 8PSK
- IDR, IBS framing
- LDPC FEC
Specifications

**DMD1050T BER Performance**

<table>
<thead>
<tr>
<th>Mod / FEC</th>
<th>Code Rate (bit/symbol)</th>
<th>Eb/No Guaranteed (Typical)</th>
<th>Data Rate Range (kbps)</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>10^7</td>
<td>10^8</td>
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<td></td>
<td></td>
<td>10^9</td>
<td>10^10</td>
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</tbody>
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**Legacy Modes**

- **BPSK VIT**
  - 1/2: 55.5 (5.1)
  - 2/3: 61.5 (5.7)
  - 3/4: 67.6 (6.2)
  - 5/6: 73.7 (6.8)
- **QPSK VIT**
  - 1/2: 61.5 (5.1)
  - 3/4: 76.7 (6.8)
  - 5/6: 83.7 (7.7)
- **QPSK VIT R-S**
  - 1/2: 76.7 (6.8)
  - 3/4: 93.8 (8.6)
  - 5/6: 102.9 (9.4)
- **QPSK VIT R-S**
  - 1/2: 83.7 (7.7)
  - 3/4: 102.9 (9.4)
- **QPSK SEQ**
  - 1/2: 61.5 (5.6)
  - 3/4: 70.6 (6.5)
  - 5/6: 74.7 (7.4)
- **QPSK SEQ**
  - 1/2: 70.6 (6.5)
  - 3/4: 74.7 (7.4)
- **8PSK TREC**
  - 2/3: 7.8 (6.4)
  - 3/4: 8.7 (7.2)
- **8PSK TREC-R**
  - 2/3: 8.7 (7.2)
  - 3/4: 9.5 (8.1)

**TPC Modes**

- **BPSK TPC**
  - 5/6: 0.31
  - 2/3: 2.7 (2.5)
  - 1/2: 2.9 (2.7)
  - 1/3: 3.1 (2.8)
  - 1/4: 3.3 (3.0)
  - 1/5: 3.3 (3.0)
  - 1/6: 3.4 (3.1)
- **QPSK TPC**
  - 1/2: 2.7 (2.4)
  - 1/3: 2.9 (2.6)
  - 1/4: 3.1 (2.8)
  - 1/5: 3.3 (3.0)
  - 1/6: 3.4 (3.1)
- **QPSK TPC-R**
  - 1/2: 3.4 (3.1)
  - 1/3: 3.6 (3.2)
- **QPSK TPS**
  - 1/2: 2.7 (2.4)
  - 1/3: 2.9 (2.6)
  - 1/4: 3.1 (2.8)
  - 1/5: 3.3 (3.0)
  - 1/6: 3.4 (3.1)
- **QPSK TPS-R**
  - 1/2: 3.4 (3.1)
  - 1/3: 3.6 (3.2)
- **8PSK TPS**
  - 1/2: 6.5 (6.0)
  - 1/3: 6.6 (6.3)
  - 1/4: 6.7 (6.4)
  - 1/5: 6.7 (6.4)
  - 1/6: 6.7 (6.4)
- **16-QAM TPS**
  - 1/2: 7.0 (6.7)
  - 1/3: 7.4 (7.1)
  - 1/4: 7.8 (7.5)
  - 1/5: 8.2 (7.9)
  - 1/6: 8.7 (8.3)
  - 1/8: 11.6 (8.8)
  - 1/16: 14.4 (9.3)

**LDPC Modes**

- **BPSK LDPC x16 DS DDS**
  - 1/2: 0.03
  - 1/3: -1.0 (-1.0)
  - 1/4: -1.9 (-1.2)
  - 1/5: -2.9 (-1.2)
  - 1/6: -3.9 (-1.2)
  - 1/8: -4.9 (-1.2)
  - 1/10: -5.9 (-1.2)
  - 1/12: -6.9 (-1.2)
  - 1/16: -7.9 (-1.2)
  - 1/32: -8.9 (-1.2)
- **QPSK LDPC x16 DS DDS**
  - 1/2: -0.9 (-1.2)
  - 1/3: -1.9 (-1.2)
  - 1/4: -2.9 (-1.2)
  - 1/5: -3.9 (-1.2)
  - 1/6: -4.9 (-1.2)
  - 1/8: -5.9 (-1.2)
  - 1/10: -6.9 (-1.2)
  - 1/12: -7.9 (-1.2)
  - 1/16: -8.9 (-1.2)
  - 1/32: -9.9 (-1.2)

**Return Loss**

- 10 dB minimum

**Spectrum**

- Selectable, meets MIL-188-165A and Intelsat IESS-308-309-310 compliant (DVB-S optional)

**Input Level**

- -25 to +15 dBm

**Total Power Input**

- +20 dBm or +40 dBm (the lesser)

**FEC**

- Turbo Product Code & LDPC optional

- BPSK 5/6, 1/4

- Custom, Reed-Solomon

- QPSK/OQPSK 2/3, 1/2

- 8PSK/16-QAM 3/4, 3/8

**Decoder Options**

- Reed-Solomon Intelsat (DVB-S optional)

**Descrambler**

- CCITT V.35 or IBS (others optional)

**Acquisition Range**

- Programmable at 1 kHz to ±255 kHz

**Sweep Delay Value**

- 100 to 9000 msecs, in 100 msecs steps

**LNB DC Current**

- 750 mA maximum (externally supplied)

**LNB Internal Reference**

- 10 MHz, 3 dBm ± 3 dB

**Plesiochronous Buffer**

- Size: 0 to 64 msecs

**Monitor & Control**

- Remote RS-485/Terminal RS-232/Ethernet 10Base-T, SNMP & Web browser