

iDirect Baseband Rack DBR2100



The iDirect baseband solution delivers unmatched performance and efficiency for modern IP broadband networks in a compact, high-density design. Engineered to meet today's demand for high-quality connectivity, it integrates advanced virtualization and cloud-native technologies to enhance security, streamline operations, and ensure scalable deployment. The baseband solution is purpose-built to grow alongside increasing bandwidth demands, delivering a future-ready solution that supports seamless expansion without sacrificing efficiency or performance. The baseband processing functions, supported by modular baseband resources, are deployed in an advanced, on-premises solution, DBR2100.

Highly Flexible and Scalable

The DBR2100 is designed to accommodate state-of-the-art baseband equipment like the XBB with DXM2100 modules. Supporting up to 22 XBBs in a single rack, and accommodating 44 DXM2100 modules that can operate in either modulator or demodulator mode, the system provides ultimate flexibility for diverse operational requirements. Its innovative baseband matrix enables N:M redundancy and simplifies integration with gateway RF infrastructure through its fan in/out capability. Operators can easily expand capacity by adding DXM2100s, ensuring the solution evolves alongside their network needs. The DXM2100 in modulator mode supports DVB-S2X carriers and in demodulator mode supports Mx-DMA MRC return link technology.

Best-in-Class Performance

The DBR2100 features a 10 Gbps Ethernet switching infrastructure for high throughput and support for forward DVB-S2X carriers up to 500 Msps, enabling operators to capitalize on the high bandwidth capabilities of HTS. Designed for reliability, the system includes integrated redundancy and a cloud-native virtualization layer based on OpenShift for optimal security and efficiency. With its optimized baseband density, scalable design, and pay-as-you-grow model, the DBR2100 equips operators with the tools to enhance performance, reduce costs, and prepare for the future of satellite connectivity.

Markets

Enterprise
SME
Cellular Backhaul
Government / Defense
Offshore and Maritime
Aero
Land Mobility

Main Advantages:

- Highly flexible and scalable architecture
- Optimized baseband density & flexibility with baseband matrix
- Advanced security with integrated cloud native virtualization layer based on OpenShift
- Up to 500 Msps forward carriers
- Carrier grade reliability with built-in redundancy
- Support for Mx-DMA HRC* and MRC return links
- Pay-as-you-grow

Forward Channel

| | |
|-------------------|---------------------------|
| Standard | DVB-S2/DVB-S2X ACM |
| Modulation | QPSK to 256APSK |
| Encapsulation | GSE, MPE |
| Carrier bandwidth | Max. 500 Msps, 525 MHz |
| Roll-off | 5, 10, 15, 20, 25 and 35% |
| Data throughput | 2 Gbps |
| Pre-distortion | Equalink |

Return Channel

Mx-DMA High-Resolution Coding (HRC)*

| | |
|-------------------|-----------------------------------|
| Modulation | VLSNR, QPSK, 8PSK, 16APSK, 32APSK |
| Carrier bandwidth | 0.030 to 20 Msps |

Mx-DMA Multi-Resolution Coding (MRC)

| | |
|-------------------|----------------------------|
| Modulation | QPSK, 8PSK, 16APSK, 64APSK |
| Carrier bandwidth | 0.1 to 100 Msps |

Hub Architecture

| | |
|------------------------------------|------------------------------|
| Modulator/Demodulator | Up to 32 slots per rack |
| Modem Hardware | XBB* MCM7500* MCD7500* |
| Modem Redundancy | N:M redundancy |
| Fan in/out baseband matrix | |
| Private Cloud Infrastructure | |
| Scalable Compute & Storage options | |

**Platform and release dependent*

Hub Interfaces

| | |
|---------------------------------|---|
| Ethernet User data | 10 GbE (Optical or RJ45) |
| Ethernet Management data | 1 GbE (RJ45) or 10 GbE (Optical or RJ45) |
| Out of Band Management | 1 GbE (RJ45) or 1 GbE (Optical) |
| RF Output per satellite network | L-band (950 - 2400 MHz) |
| RF Input per satellite network | L-band (950 - 2150 MHz) |
| Reference Input | IEEE1588v2 or 10 MHz |

Mechanical & Environmental

| | |
|-----------------------|------------------------------------|
| Operating temperature | 10° to 30°C / 50° to 95°F |
| Humidity | 10 to 85% relative, non-condensing |
| Storage temperature | -30° to 60°C / -22° to 140°F |

Main Power Supply

| | |
|--------------|--|
| Power Supply | 380-400 VAC 3PH+N+GND (EU+AUS) 208 VAC 3PH + GND (US) |
|--------------|--|



DBR2100

Hub Modulator and Demodulators

The flexible state-of-the-art hub infrastructure is equipped with the latest virtualization and cloud technologies for strengthened security, streamlined operations and scalable deployment option and with modulators and multicarrier demodulators according to the satellite network requirements. Full detailed specifications can be found on the respective product sheets on our website.

Intuition Baseband Equipment

XBB



XBB Chassis

| | |
|------------------|-------------------------------------|
| Chassis Size | 1 RU 19-inch width, 20.4 inch depth |
| Chassis Capacity | Houses up to 2 DXM2100 modules |
| DXM2100 Module | Modulator or Demodulator mode |

DXM2100 Modulator Mode (DVB-S2X)

| | |
|------------------|--|
| Modulation | VLSNR, QPSK to 256APSK |
| Carrier Options: | Up to 32 physical carriers Up to 40 virtual carriers 5 - 500 Msps* |

| | |
|----------------------|-------------------------------------|
| Processing bandwidth | 1.5 GHz |
| Data throughput | up to 8.4 Gbps aggregate throughput |

DXM2100 Demodulator Mode (Mx-DMA MRC)

| | |
|----------------------|-------------------------------------|
| Modulation | QPSK, 8PSK, 16APSK and 64APSK |
| Number of Carriers | Up to 4 iNets, Up to 1024 carriers |
| Symbol Rate | 135 Kbps up to 100 Msps per carrier |
| Processing bandwidth | Up to 210 MHz |
| Throughput | Up to 800 Mbps aggregate throughput |

PTP Device



Timing Source

| | |
|------------------|---|
| Reference Clock | Internal: Oven-controlled crystal oscillators (OCXO) External: 10MHz reference input |
| PTP Probe Option | 1588v2 PTP Grandmaster Clock 1588v2 PTP Slave Clock |
| Management | 1x GigE management interface supporting WebUI, CLI and REST-API |
| Receiver Option | GNSS Antenna, 72 Channel |
| Outputs | 1x GigE output supporting PTP |

**Platform and release dependent*



Dialog Baseband Equipment

MCM7500 Multi-Carrier Modulator



DVB-S2 / DVB-S2X

| | |
|--------------------|---------------------------|
| Modulation | QPSK to 256APSK |
| Carrier bandwidth | Max. 500 Msps, 525 MHz |
| Roll-off | 5, 10, 15, 20, 25 and 35% |
| Pre-distortion | Equalink |
| Number of Carriers | 1 |
| Data throughput | 2 Gbps |

MCD7500 Multi-Carrier Demodulator



Mx-DMA High -Resolution Coding (HRC)

| | |
|----------------------|--|
| Modulation | VLSNR, QPSK, 8PSK, 16APSK, 32APSK |
| Carrier Options: | Up to 24 carriers in range 0.03 - 20 Msps |
| Processing bandwidth | 72 MHz |
| Data throughput | 216 Mbps |

Mx-DMA Multi-Resolution Coding (MRC)

| | |
|----------------------|---|
| Modulation | QPSK, 8PSK, 16APSK, 64APSK |
| Carrier Options: | Up to 512 carriers in range 0.1 - 100 Msps |
| Processing bandwidth | 105 MHz |
| Data throughput | 400 Mbps |

TFR210 PTP Grandmaster



Timing Source

| | |
|------------------|---|
| Reference Clock | Internal: Oven-controlled crystal oscillators (OCXO) External: 10MHz reference input |
| PTP Probe Option | 1588v2 PTP Grandmaster Clock 1588v2 PTP Slave Clock |
| Management | 1x GigE management interface supporting WebUI, CLI and REST-API |
| Outputs | 1x GigE output supporting PTP |