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-premesis 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

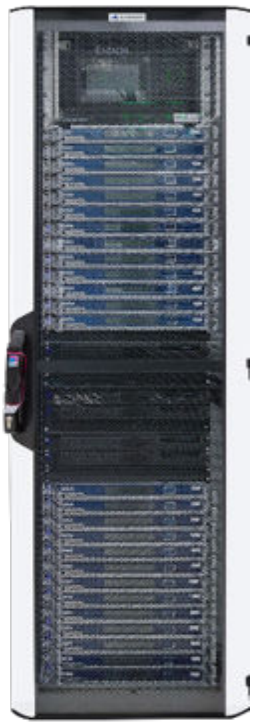
Ethernet User data	10 GbE (Optical or RJ45)
Ethernet Management data	1 GbE (RJ45) or 10 GbE (Optical or RJ45)
Out of Band Management	1 GbE (RJ45) or 1 GbE (Optical)
RF Output per satellite network	L-band (950 - 2400 MHz)
RF Input per satellite network	L-band (950 - 2150 MHz)
Reference Input	IEEE1588v2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

Specifications

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
Reciever 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