UHP-210

INTEGRATED SATELLITE ROUTER

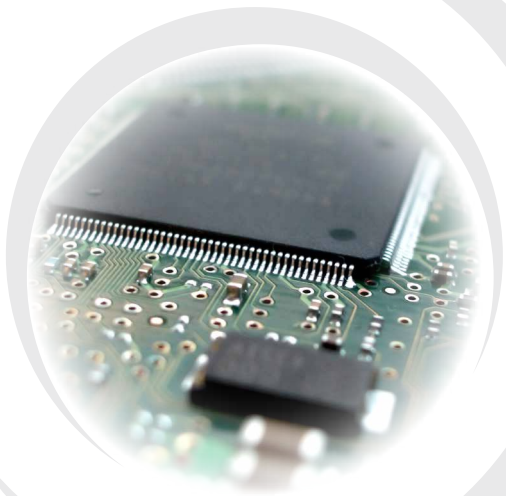| SCPC	TDM/TDMA	Hubless TDMA

UHP-210 Integrated Satellite Router is based on a new advanced hardware platform and is backward compatible with previous generations of UHP routers. It comprises multi-channel DVB and MF TDMA demodulators, a universal SCPC/TDMA modulator and a powerful IP router. The primary application of UHP-210 is complex remote TDM/TDMA or Hubless TDMA terminal with high throughput and multi-mode operation. This universal satellite router can also be used as a compact TDM/TDMA Hub.

Innovative algorithms for network access, resource allocation and data encapsulation as well as advanced modulation and coding, implemented in the UHP routers, ensure efficient utilization of satellite resource.

- The world's fastest VSAT router with aggregate through-put up to 450 Mbps and powerful UHP-RTOS™

- Two independent DVB demodulators with separate software-switchable IF inputs and rate up to 65 Msps

- Enhanced DVB-S2 QPSK, 8PSK, 16APSK and 32APSK modulations with 5% or 20% roll-off

- Multichannel MF-TDMA demodulator with innovative protocol and proven efficiency of 96% vs. SCPC

- Adaptive coding and modulation (ACM) in forward and return channels, including SCPC and TDMA modes

- Various modes of operation and topologies: SCPC, TDM/TDMA, TDM/TDMA Mesh, Hubless TDMA

- HTS-ready VSAT with support of multiple beams, bands, satellites reception with traffic balancing

- Superior IP router productivity up to 226'000 pps and reach set of supported protocols, multi-level QoS

- Support of Layer 3 routing architecture and Layer 2 bridging mode with IPV6 transport

- Two Gigabyte Ethernet user's ports with built-in switch simplifies scalability and connection of CPE

- Ultra-low latency VSAT system with round-trip delay about 570 ms for TDMA mode of operations

- Low power consumption, fast start, and extended range of operational temperatures

- Support of 1:1 or 1:N automatic redundancy schemes without use of external controllers
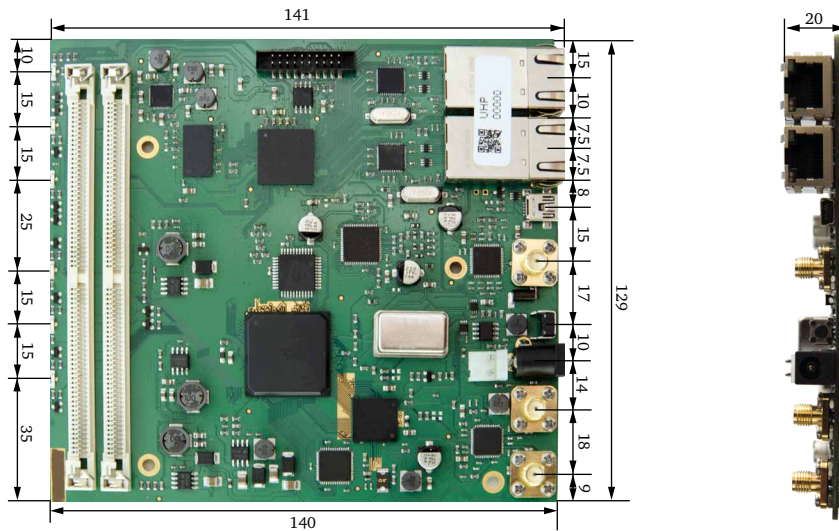
Multiple demodulators allow simultaneous reception of two TDM or SCPC carriers and group of TDMA mesh carriers from two distinct satellite beams or from two antennas. Universal modulator can instantaneously switch from TDMA burst mode to SCPC mode.

UHP-210 is implemented as a compact single card ideal for integration into third-party OEM products. The router card has LED indicators, SMA or F type IF connectors and user LAN interfaces. Optionally, the router card can be equipped with the asynchronous LVTTL data port. Low power consumption and uniquely fast start upon power-up facilitate use of alternative power sources.

UHP-210 INTEGRATED SATELLITE ROUTER SPECIFICATIONS

NETWORK	
Topology	'point-to-point', 'hub and spoke', 'multilevel tree', 'mesh'
Modes of operation	SCPC, SCPC DAMA, TDM/SCPC, TDM/TDMA, TDM/TDMA Mesh, Hubless TDMA
Network size	Up to 252 TDMA Inroute channels or MF groups and 500 000 terminals per network
Network role	SCPC modem, TDM/TDMA terminal or Hub, Hubless Slave or Master
Frequency bands	C, X, Ku, Ka, including multi-beam HTS satellites

SCPC (TDM) CHANNEL - Two demodulators with selectable IF inputs									
Modulation	DVB S2 ACM: QPSK, 8PSK, 16APSK, 32APSK; TLC; roll-off 5% or 20%								
Symbol rate	300 ksps - 65 Msps with 1 ksps step; max 53.8 Msps for 32APSK; In dual-demodulator mode 44.5 Msps (8PSK); 33.7 Msps (16APSK); 27.0 Msps (32APSK) max.								
Data rate	200 kbps - 225 Mbps								

C/N threshold levels, dB	FEC	1/3	2/5	1/2	3/5	2/3	3/4	4/5	5/6	8/9
BER $<10^{-8}$	QPSK	-0.9	0.0	1.1	2.7	3.6	4.4	5.0	5.5	6.5
20% roll-off	8PSK	-	-	-	6.1	7.1	8.4	-	9.7	11.3
(+0.1 dB for 5% RO)	16APSK	-	-	-	-	9.4	10.8	11.5	12.2	13.4
	32APSK	-	-	-	-		14.6	15.8	16.9	18.4

QoS	4-level prioritization, traffic policies, CIR, MIR, group QoS, hierarchic traffic shaper, FAP

TDMA CHANNEL - Up to 4 demodulators with common IF input	
Number of channels	1 standalone/MF-TDMA or up to 4 MF-TDMA with common IF input*
Modulation	BPSK*, QPSK, 8PSK; ACM; TLC; roll-off 20% or 5%*
Symbol rate	100 ksps - 5 Msps (8 Msps*) LDPC ACM; 10 Msps of aggregate rate for all TDMA demodulators
TDMA Protocol	Frame 50-1000 ms, 8 slot sizes, manageable minimal bandwidth; slot-to-slot fast MF-TDMA hopping

C/N threshold levels, dB	FEC	2/3	5/6
BER $<10^{-7}$	QPSK	5.4	6.9
20% roll-off	8PSK	9.6	12.0

QoS	CIR, MIR, group QoS, FAP, RT traffic support, day/night, hierarchic manager of TDMA bandwidth

ROUTER	
Performance	Up to 220'000 packets per second
Support	DSCP, multiple IP/VLANs, NAT, proxy ARP, L2 Bridging, TCP Acceleration, AES-256 encryption
Protocols	DHCP, IGMP, SNMP, RIP, SNTP, TFTP, cRTP
Management	HTTP interface, SNMP, Telnet, NMS with VNO support

INTERFACES	
User LAN	2 x Gigabit Ethernet, RJ-45
Maintenance console	MiniUSB, B female
IF Rx (two inputs)	950-2150 MHz (LO 10 MHz/+5 dBm, 13.5/18 VDC 0.75 A)
IF Tx	950-1750 MHz (optionally up to 2150 MHz), –45…- 5 dBm, (LO 10 MHz/+5dBm, 24VDC/2A)

MECHANICAL / ENVIRONMENTAL (IDU)	
Power	24 VDC, 10 W
Operating temperature	$-40^0…+50^0$ C, humidity up to 90%

Available with future SW releases

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