

nCELL-T5100 DATASHEET

nCELL-T5100

5G Virtualized BaseBand Units



5G NR

4 Cells

3GPP Release R16

DL 1.5Gbps/UL 260Mbps

1600 Active Users per BBU

The nCELL-T5100 from Sunwave is used to realize 5G NR base station processing unit to centrally control and manage the entire base station system. It realizes direct access and data interaction with 5G core network, with NGAP and XnAP interface. Also, the product realizes 5G NR access network protocol stack function, RRC, PDCP, SDAP, RLC, MAC and PHY protocol layer functions, as well as baseband processing functions.

nCELL-T5100 DATASHEET

PROCESSOR PARAMETERS	
CPU	Single Intel® Sapphire Rapids Scalable Processor
Photolithography	10nm
Memory Type	DDR5 DIMM
Supported ECC Memory	Yes
Maximum Number of Memory Channels	6
Maximum Memory Speed	4800MT/s
Chipset	Emmitsburg series of chipset
Size	438 x 420 x 43.8 mm 17.24 x 16.54 x 1.72 in (W x D x H)
Weight	6.5 kg 14.33 lbs
Power Supply	550W 1+1 redundant PSUs 100V to 240V AC @50-60Hz -36V to -72V DC
MTBF	150,000 h

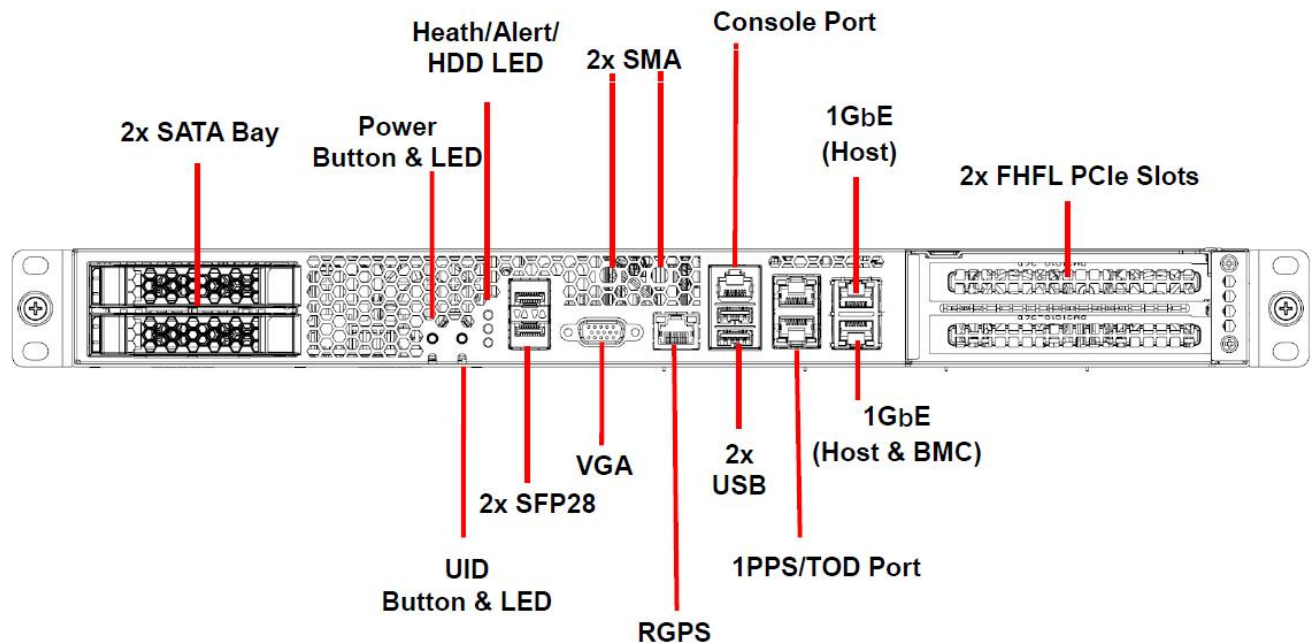
FUNCTIONAL INDICATORS	
Standard	3GPP R16
Server Platform	Sapphire Rapids Scalable Processor-145W
Maximum Number of Cells	4
Carrier Bandwidth	10MHz/20MHz/40MHz/50MHz/60MHz/80MHz/100 MHz
Subcarrier Spacing	30 kHz
Number of Active Users	1600 users per BBU
Downlink Peak Rate	1.5 Gbps (DDDSU), 658Mbps (DSUUU)
Uplink Peak Rate	260 Mbps (DDDSU), 669Mbps (DSUUU)
Maximum Number of Data Streams	Downlink 4 streams
	Uplink 2 streams
Number of Concurrently Scheduled Users	4 users / Slot
RF Front End	RRU with network adaptor
RF Front End	< 25 GHz
Duplex Mode	TDD
BS Spatial Layers	4
UE Spatial Layers	2
Fronthaul Bandwidth	Up to 25G
Number of Fronthaul Interfaces	4
Return Bandwidth	Up to 25G
Number of Return Interfaces	2

nCELL-T5100 DATASHEET

ENVIRONMENTAL SPECIFICATIONS

Temperature	Operation	-5 °C ~ +55 °C +23 °F ~ +131 °F
	Storage	-40 °C ~ +70 °C -40 °F ~ +158 °F
Humidity	Operation	5% ~ 95% RH @40 °C, non-condensing
	Storage	5% ~ 90% RH, non-condensing
Fan	5 fans, smart fan speed control	
Shock	Operating time: Half sine 2G, 11ms pulse, 100 pulses in each direction	
	Non-operating: Trapezoidal, 25G, 170 inches/sec delta V, three drops in each direction	
Vibration	Non-operating Vibration: 2.2Grms, 10 minutes per axis in each direction	
Acoustic	Sound pressure < 75 dBA @1m with all fans maximum speed	

DEVICE INTERFACE



IO Interface	2x 1G RJ45 Ethernet port
	2x 25G SFP28 Ethernet ports
	1x RJ-45 serial port
	2x USB 3.0 (5V/0.9A) / USB 2.0
	1x USB 2.0 Header (internal)
Back Interface	1x VGA port
	1 x Power Plug
INTERNAL INTERFACE	
IO Interface	1 x USB 2.0
	1 x 1PPS SMA input

nCELL-T5100 DATASHEET

PCIe	2x FHFL single-slot PCIe x16 Gen4 slot (via riser card)
	2x 2.5" hot-swappable SATA drive bays
	1x M-key M.2 (PCIe x2 NVME, SATA)
	1x B-key M.2 (PCIe x2 NVME, SATA, USB 3.0/2.0)

nCELL-T5100 DATASHEET

Ethernet Network Adapter



5G ORAN Prequel
10G Ethernet 1588V1/V2 Clock
Synchronization Service

Intel® Ethernet Network Adapter E810-XXVDA4T is based on the Intel® Ethernet Controller E810 (E810) to realize the functions of data forwarding, and meets the application requirements of high bandwidth, low latency and multi-cell deployment required by the 5G BBU system.

This card is a single-slot, full-height half-length (FHHL) card, using PCIe 4.0 x16 interface to connect to the system, and externally supports 4 SFP28 optical ports.

The card is equipped with a high-precision clock source and clock phase-lock circuit, supports external 1588V1/V2 and GNSS input, and can provide stable clock synchronization services to the next-level network node through the SFP28 fronthaul interface.

nCELL-T5100 DATASHEET

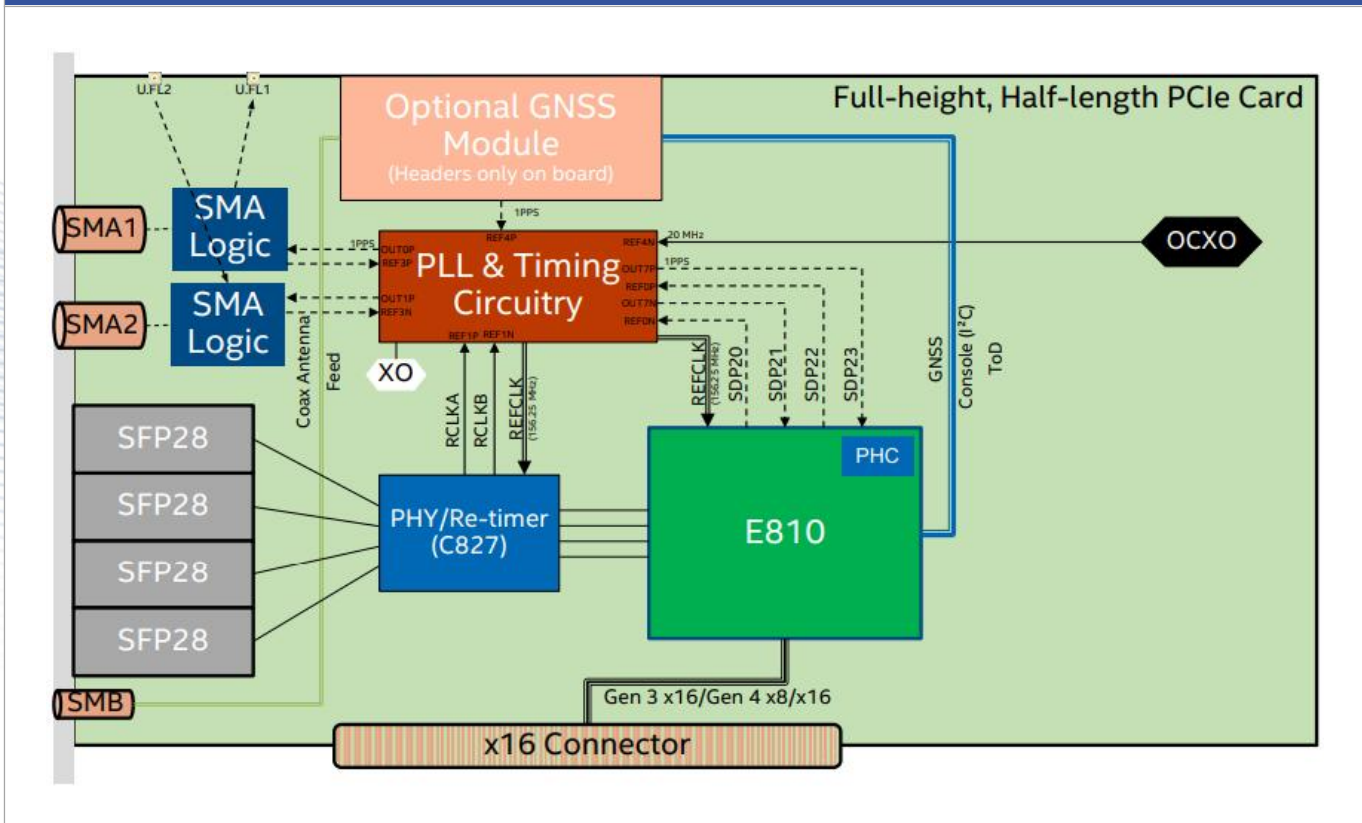
FRONTAUL DATA FORWARDING PERFORMANCE

	Downlink Rate	Uplink Rate	Remarks
Single optical port rate	25/10 Gbps	25/10 Gbps	4 concurrent ports

CLOCK SYNCHRONIZATION PERFORMANCE

Support Standard	Index	Uplink Rate
SyncE G.8262	All 4 interfaces support	
Keep ability	$\pm 1.5 \mu s$ over 4 Hours	Choose high stability OCXO

SINGLE BOARD FRAME



nCELL-T5100 DATASHEET

SINGLE BOARD SPECIFICATIONS

Fronthaul	4x25/10G eCPRI Supports 1588 V1/V2	Data aggregation	Data cache	Package classification management
Clock circuit	Onboard OCXO, high-precision phase-locked loop synchronization circuit	Onboard GPS receiver module	Supports external 1588 V1/V2 input	

CHIPSET SPECIFICATIONS

Structure Size	Full-height, half-length (FHHL) 6.58 in x 4.37 in (167 mm x 111 mm)
PCIe Interface	PCIe 4.0 x16
Network Interface	4 SFP28 optical ports
Storage Temperature	-40 °C ~ +70 °C +40 °F ~ +158 °F
Operating Temperature	0 °C ~ +65 °C +32 °F ~ +149 °F
Power Consumption	< 33.3W
Single Board Clock Synchronization Mode	• Supports external GNSS for synchronization (including GPS, Galileo, GLONASS, BeiDou, and QZSS) • Supports 1588V1/V2 • Optional high stability crystal oscillator for local clock keeping within 4 hours with time accuracy deviation less than $\pm 1.5\mu\text{s}$

Contact Us Today

en.sunwave.com