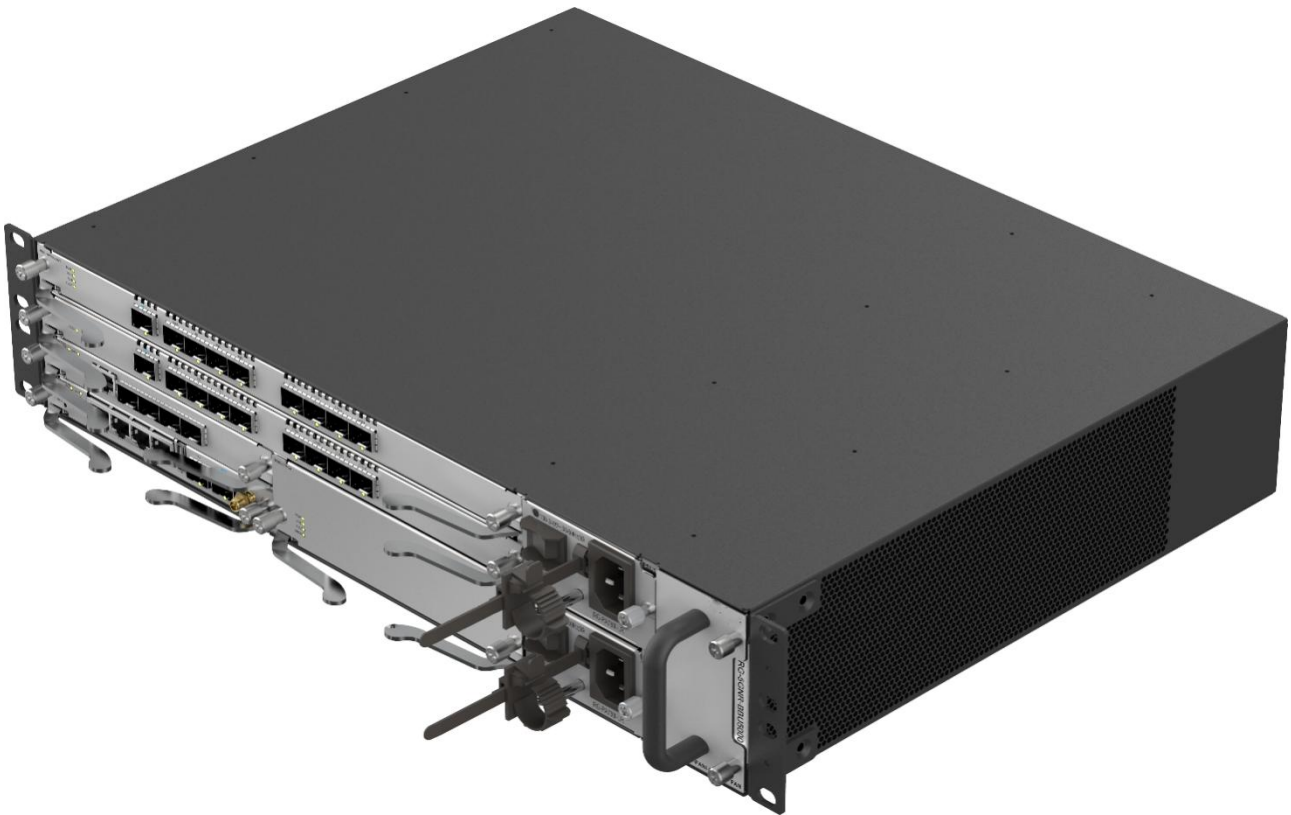


JTD-CDU3630

Product Appearance



JTD-CDU3630 Left View



JTD-CDU3630 Front View

Product Overview

Networking

JTD-CDU3630 is the baseband unit (CDU) of Jietong 5G Small cell solution.

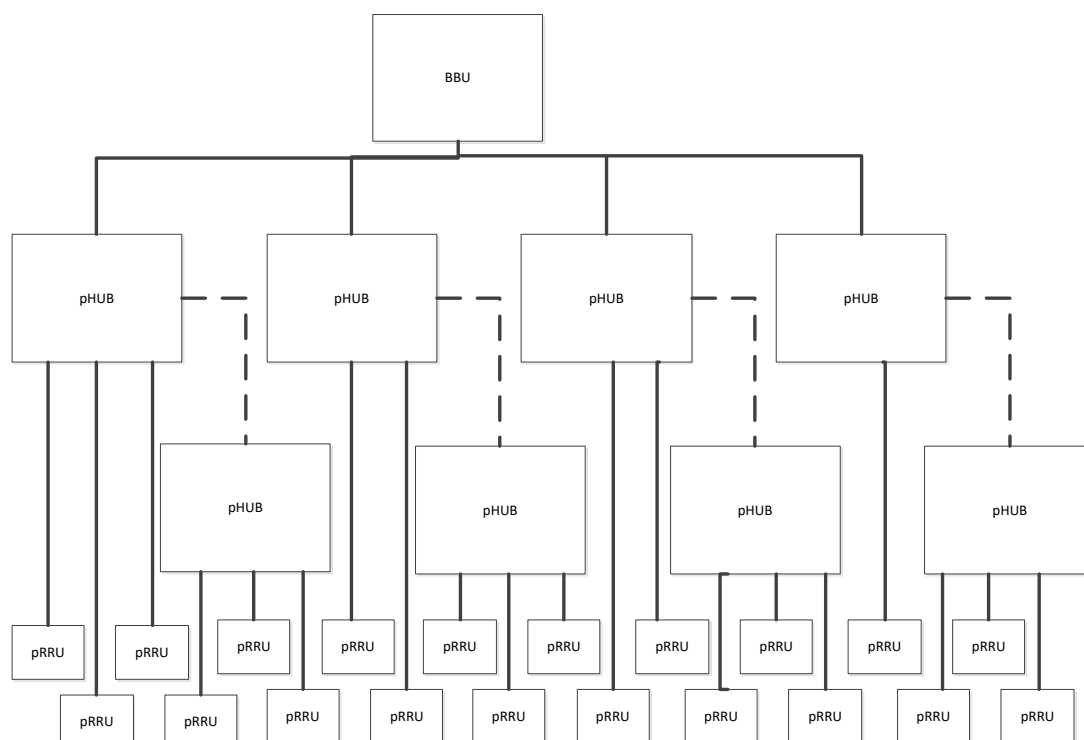
A 5G Small cell, also known as an extended Pico Small cell, is a Micro power indoor coverage solution that uses optical fibers or network cables to transmit and distribute wireless digital baseband signals based on digital technologies. Used in indoor scenarios, it is one of the mainstream solutions for enhancing indoor coverage in the 5G era.

A Small cell consists of a main unit (CDU), an extended unit (pHUB), and a remote unit (pRRU).

The CDU processes BS baseband signals and provides the following functions:

- I. Provide external ports connected with the core network, bearer network, campus network, pHUB, Pico Remote Radio Unit (pRRU), and external clock source to ensure signal transmission, automatic BS software upgrade, clock receiving, and local offloading of the campus network traffic.
2. Manage the whole BS system, process uplink and downlink data and L1/L2/L3 signaling, manage resources, and maintain operations.

The following figure shows the network topology of a 5G Small cell.



Board Cards

JTD-CDU3630 utilizes a framework architecture that contains multiple types of board cards to implement different functions.

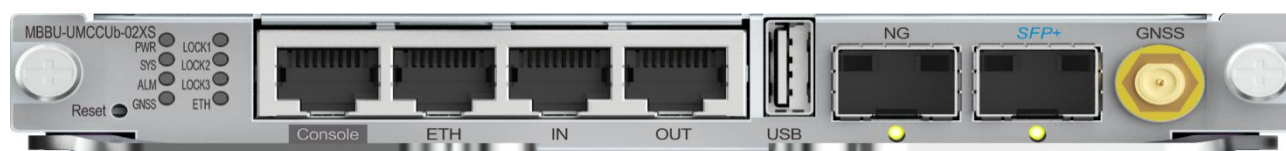
JTD-MCDU-UMCCUb-02XS is the main control board, JTD-MCDU-BP5Gb-04VS is the 5G baseband processing unit, and JTD-MCDU-BP4Ga-04XS is the 4G baseband processing unit, as described in Table 2-1.

Board Cards

Model	Description
JTD-CDU3630	CDU (including the chassis, fan, and power supply)
JTD-MCDU-UMCCUb-02XS	Integrated 4G+5G main control unit
JTD-MCDU-BP5Gb-04VS	5G baseband processing unit
JTD-MCDU-BP4Ga-04XS	4G baseband processing unit

a) JTD-MCDU-UMCCUb-02XS Board Card

- Front view



JTD-MCDU-UMCCUb-02XS Front View

- Port description

JTD-MCDU-UMCCUb-02XS front panel ports	ETH: 1000M Ethernet port for local management. The port type is RJ-45.
	IN: IPPS+TOD interface input for clock synchronization ports. The standard port type is RJ-45.
	OUT: IPPS+TOD interface output for clock synchronization ports. The standard port type is RJ-45.
	Console: one console port. The port type is RJ-45.
	USB: USB 2.0 port for local copying and system upgrade.
	NG: one 10G SFP+ port, connected with the uplink core network.

	SPF+: reserved 10G SPF+ port as a local offloading port or double-uplink port in later software versions.
	GNSS: standard SMA port connected with the GPS/Beidou antenna.
	RST: reset button to reset the CDU.

b) JTD-MCDU-BP5Gb-04VS Board Card

- Front view

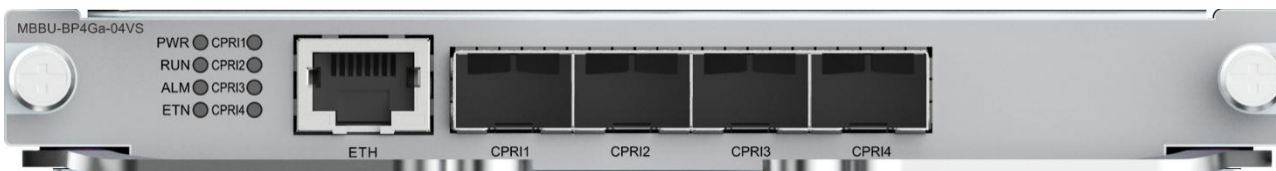


- Port description

CDU-BP5Gb-04VS front panel ports	CPRI: 4 x 25G/10G SPF ports, connected with downlink pHUBs.
	IOB: 2 x 25G SPF ports (reserved).
	4G: connected with the downlink MCDU-BP4Ga-04XS.
	NG-S: reserved 10G port.
	SFP+: reserved 10G port.

c) MCDU-BP4Ga-04XS Board Card

- Front view



- Port description

JTD-CDU-BP4Ga-04XS front panel ports	CPRI: 4 x 10G SPF ports, connected with the 4G CPRI SPF port of MCDU-BP5Gb-04VS.
	ETH: 1000M Ethernet port for local management. The port type is RJ-45.

| Product Features

a) Flexible Framework Design

JTD-CDU3630 has eight half-width slots. The slots are allocated as follows:

Slots 1 to 4 can be equipped with two half-unit full-width (HUFW) 5G baseband processing units (JTD-MCDU-BP5Gb-04VS) and can be extended to four half-unit half-width (HUHW) 5G baseband processing units.

Slot 5 can be equipped with the 4G baseband processing unit JTD-MCDU-BP4Ga-04XS.

Slot 6 is reserved and can insert one independent card later.

Slot 7 can be equipped with the integrated main control unit JTD-MCDU-UMCCUb-02XS.

Slot 8 is reserved and can insert one independent card later.

b) Multi-Small cell Configuration

One 5G baseband processing unit (JTD-MCDU-BP5Gb-04VS) supports four 2T2R or two 4T4R 5G Small cells.

One 4G baseband processing unit (JTD-MCDU-BP4Ga-04XS) supports one 2T2R 4G Small cell.

This product supports up to eight 2T2R or four 4T4R 5G Small cells and one 4G Small cell. In this case, the device must be inserted with two 5G baseband processing units (JTD-MCDU-BP5Gb-04VS) and one 4G baseband processing unit (JTD-MCDU-BP4Ga-04XS).

c) Multi-UE Capability

Each Small cell has 400 or more activated UEs and 1200 or more connected UEs.

d) Multiple Synchronization Capabilities

This product supports the Beidou and GPS modes and can switch between the two modes automatically.

JTD-CDU3630 supports I588v2 in-band synchronization.

e) Clock Holding

After the synchronization signal is lost, this product supports the clock holding function to ensure signal synchronization for 24 hours.

f) Multi-mode

This product supports the 5G NR, TD-LTE, and LTE FDD modes.

g) Small cell Merging

This product can merge Small cells serving by multiple pRRHs. One pHUB supports two Small cells at most, ensuring flexible networking.

h) Local Offloading

Local offloading, also known as minimalist offloading, is supported. This product offers various offloading solutions based on the IP address 5-tuple, public land mobile network (PLMN), and slice.

Technical Specifications

JTD-CDU3630 Parameters

Model	JTD-CDU3630	
Slot Allocation	SLOT1, SLOT2	Full-width 5G processing units (MCDU-BP5Gb-04VS)
	SLOT3, SLOT4	Full-width 5G processing units (MCDU-BP5Gb-04VS)
	SLOT5	Half-width 4G processing unit (MCDU-BP4Ga-04VS)
	SLOT6	Reserved extended slot
	SLOT7	Half-width main control unit (MCDU-UMCCUb-02XS)
	SLOT8	Reserved extended slot
	PSU1, PSU2	780 W 48 V DC power modules or 220 V AC 50-60 Hz power modules
	FAN	Hot-swappable fan box as a standard configuration (MCDU-FANI-LR)
Installation Mode	Mounted to a standard 2U 19-inch cabinet, 88 mm x 442 mm x 338 mm (H x W x D)	
Weight	< 11.5 kg	
Installation Environment	Standard operating ambient temperature: -5°C—55°C Storage temperature: -40°C—70°C Operating humidity: 5%—95% (no condensation) Storage humidity: 5%—95% (no condensation)	
IP Rating	IP3I	
Anti-vibration Ability	Seismic fortification intensity of 9 degrees or more	
Typical Power Consumption for 5G Service Configuration @ 25°C	JTD-MCDU-BP5Gb-04VS(1*DU) JTD-MCDU-UMCCUb-02XS(1*CU)	< 250 W
Safety Regulations	GB4943, EN60950-1	
EMC Regulations	GB9254, GB17618, EN55022, EN55024, 3GPP TS 38.113	

JTD-MCDU-UMCCU_b-02XS Parameters

Model	JTD-MCDU-UMCCU _b -02XS
Management Functions	Configuration of the NTP server IP address and synchronization period
Fault Alarms	Alarm for power-on, power-off, and reset of board cards Alarm in case of change in the in-place status of a power module or fan Alarm for faults related to board card self-check upon startup and the board card OS Alarm in case of faults related to the memory, embedded multimedia card (eMMC), or devices in slots Alarm for abnormal air inlet temperature, temperature or voltage of key components, and system protection in case of a high-temperature alarm
Power Management	Display of overall power consumption, with the deviation of less than 5% Remote power-on, power-off, and reset functions Power-on/power-off statuses of board cards Power management for boards in slots
Sensor	Read the air inlet temperature of the main control board. Read the CPU temperature and input voltage. Read the memory temperature and input voltage. Read the key voltage information of the main control board. Control the temperature and voltage deviations to less than 5%.
Front Panel Ports	ETH: 1000M Ethernet port for local management. The port type is RJ-45. IN: IPPS+TOD interface input for clock synchronization ports. The standard port type is RJ-45. OUT: IPPS+TOD interface output for clock synchronization ports. The standard port type is RJ-45. Console: one console port. The port type is RJ-45. USB: USB 2.0 port for local copying and system upgrade. NG: one 10G SFP+ port. SFP: one 10G SFP+ port. GNSS: SMA port, connected with the GPS/Beidou antenna. RST: reset button.
Installation Mode	Inserted into a HUH _W slot
Weight	< 1 kg

JTD-MCDU-BP5Gb-04VS Parameters

Model	JTD-MCDU-BP5Gb-04VS
Sensor	Read the air inlet temperature of the main control board. Read the CPU temperature. Read the memory temperature. Control the temperature and voltage deviations to less than 5%.
Panel Ports	4 x 10G/25G SFP+: 5G downlink ports 1 x 10G SFP+: 4G cascading port 2 x 25G SFP+: reserved 1 x 10G SFP+: reserved 1 x 10G SFP+: reserved
Memory Interfaces	DDR4 SODIMM ECC supports 4-channel design. The memory capacity is 16 GB x 4.
5G Carrier-sector Capacity	For two 4T4R 100 MHz Small cells For four 2T2R 100 MHz Small cells
Installation Mode	Inserted to a HUFW slot, supporting hot swapping

JTD-MCDU-BP4Ga-04XS Parameters

Model	JTD-MCDU-BP4Ga-04XS
Fault Alarms	Alarm for power-on, power-off, and reset of board cards Alarm for faults related to board card self-check upon startup and the board card OS Alarm in case of abnormal air inlet temperature, and system protection in case of a high-temperature alarm
Power Management	Remote power-on, power-off, and reset functions Power-on/power-off statuses of board cards
Panel Ports	4 x 10G SFP+ CPRI ports 1 x 1G network port (RJ-45 port)
Communication Mode	TDD and FDD
Carrier-sector Capacity	At least one 2T2R 20 MHz Small cell
Installation Mode	Inserted into a HUHFW slot, which is 322.4 mm deep
Weight	< 1 kg

JTD-CDU5000 Software Functions		
Indicators	Number of pRRUs managed by a 5G baseband processing unit	64
	Number of pRRUs managed by the entire device	128
	Number of pHUBs managed by a 5G baseband processing unit	8
	Number of pRRUs managed by the entire device	16
	Number of Small cells configured on a 5G baseband processing unit	Four 2T2R Small cells or two 4T4R Small cells
	Number of Small cells configured on the entire device	Eight 2T2R Small cells or four 4T4R Small cells
	Number of UEs associated with a 5G Small cell	1200
	Number of activated UEs in a 5G Small cell	400
	Total number of 5G UEs	4800
	Total number of activated 5G UEs	1600
	Number of UEs associated with a 4G Small cell	384
	Number of activated UEs in a 4G Small cell	128
Basic 5G Functions	Small cell bandwidth	100 MHz\60 MHz
	Frame structure and modulation	Subcarrier spacing of 30 kHz
		The 2.6 GHz band supports the DL-UL pattern periodicity of 5 ms. The typical configuration of 10 slots is DDDDDDDDSUU.
		The 3.5 GHz band supports the DL-UL pattern periodicity of 2.5 ms (dual periods). The typical configuration of 10 slots is

		DDDSUDDSUU.
		The 3.5 GHz band supports the DL-UL pattern periodicity of 2.5 ms (single period). The typical configuration of 5 slots is DSUUU or DDDSU.
		Flexible configuration of the frame header offset
		Uplink and downlink 256QAM modulation
	Downlink power allocation	Configuration of the power improvement (up to 6 dB) for SIB, paging, and MSG2
		Configuration of the PDCCH power improvement (up to 6 dB) for SIB, paging, and MSG2
		Configuration of the CSI-RS power offset
	Uplink power control	Configuration of the PRACH initial power and power adjustment step for operators
		Open-loop/closed-loop power control for PUSCH, PUCCH, and SRS
	Radio resource control (RRC)	Establishment, re-configuration, re-establishment, and release of RRC connections
		Configuration of the status conversion timer.
		Core network paging function
		Multi-PLMN broadcast in a single Small cell
	Intra-RAT mobility	Small cell reselection
		Intra-RAT switching over the NG/XG interface
	NG interface management	Establishment of PDU session resources
		Establishment of initial UE context information
		AMF load balancing
		Configuration of multiple NG interfaces on gNB
		AMF pooling of NG interfaces
	QoS management	Non-GBR services
		GBR services
		Extend 5QI and customization of the 5QI level and configure the minimum uplink and downlink guarantee rates and scheduling levels for extended 5QI
		Allocation and retention priority (ARP) for QoS parameters, used for

		admission control and user level identification
		UM or AM mode (RLC mode) for DRB based on QoS requirements of services
	Network slice	Service slice perception based on the slice expression
		AMF selection based on the slice identifier
		Selection of a new AMF based on the reroute message of the core network
		Isolation of resources on the wireless network side based on the slice user group
	Voice services	VoNR function
		EPS fallback function
	UE energy saving	Long and short DRX in RRC_connected state
		Default paging DRX in idle state
Basic 4G Functions	Small cell bandwidth	5\10\15\20 MHz bandwidth
	Frame structure	Uplink and downlink timeslot ratio of 2DL:2UL and 3DL:1UL with the periodicity of 5 ms
	Modulation mode	Uplink and downlink modulation mode: BPSK, QPSK, 16QAM, 64QAM
	Uplink power control	Configuration of the PRACH initial power and power adjustment step for operators
		Closed-loop power control of MSG3\PUSCH\PUCCH
	RRC	Establishment, re-configuration, re-establishment, and release of RRC connections
		Establishment, re-configuration, and release of data bearers
		Paging function
	Intra-RAT mobility management	Intra-RAT Small cell reselection
		Intra-RAT intra-frequency\inter-frequency switchover
	QoS management	GBR services (QCI 1-4) and non-GBR services (QCI 5-9)
		MBR, GBR, UE-AMBR, and QCI (priority, PDB, PER) parameters for scheduling based on QoS parameters
		ARP for QoS parameters, used for admission control and user level identification
Voice services	VoLTE function	

		Sixty-four SD or HD VoLTE service users in a Small cell
	UE energy saving	Long and short DRX in RRC_connected state
		Default paging DRX in idle state
Inter-RAT Interoperation	Data service interoperation	Coverage-based inter-RAT redirection
		Coverage-based intra-RAT switchover
	Voice service interoperation	Redirection-based EPS FB
		Switching-based EPS FB.
Special Functions	Local offloading	Configuration of offloading policies and parameters through the OMC (e.g., to support offloading based on the slice ID, configure the slice ID)
		Offloading based on the IP address 5-tuple (100 or more IP rules) or slice IDs (15)
		PLMN-based offloading
		Separate statistics of uplink and downlink traffic based on the IP address and reporting the traffic to the OMC
		Configuration of the maximum offloading bandwidth for local offloading of service traffic, which is not greater than the Small cell-level peak rate
		Configuration of the maximum offloading traffic in a period (at least 1 hour), and automatic shutdown of the local offloading function in case of traffic beyond such threshold(offloading traffic set based on the IP address)
	Automatic optimization	Automatic site deployment (comply with the standard of China Mobile and need OMC cooperation)
		PCI conflict and confusion detection and reporting
		Automatic identification and addition of intra-frequency/inter-frequency/inter-RAT neighboring Small cells
	Energy saving	Collection of the BS power consumption data
		Frame symbol power-down
		PicoSmall cell deep sleep function

| Ordering Information

Model	Product Description	Remarks
JTD-CDU3630	CDU chassis, which can be inserted fans, power modules, and board cards	Required
JTD-MCDU-UMCCUb-02XS	CDU main control board, which receives synchronization signals and processes CU and other units	Required
JTD-MCDU-BP5Gb-04VS	CDU 5G baseband processing unit, which processes and forwards 5G digital baseband signals	Required
JTD-MCDU-BP4Ga-04XS	CDU 4G baseband processing unit, which processes and forwards 4G digital baseband signals	Optional
JTD-RG-PA780I-LR	AC/DC switch power of the CDU, which supports hot swapping	Optional
JTD-RG-PD780I-LR	DC/DC switch power of the CDU, which supports hot swapping	Optional