4+5G Mid Power Integrated Base Station Product Specifications V1.0

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1. Overview

1.1 Introduction

The 4+5G Mid Power Integrated Base Station is a highly integrated base station that integrates BBU and RRU functionalities into a single unit. This product can perform the complete functions of a base station and has the capability to connect to the core network. This product combines 4G/5G integrated base stations, utilizing PON broadband or IPRAN/STN backhaul to achieve fast and convenient wireless signal coverage. It addresses the limitations of 4G/5G edge or blind spot coverage, enabling 4G/5G signal coverage for medium-sized indoor and outdoor environments.

This specification document provides a detailed description of the SBR.20061, SBR.20081, and SBR.20076 device specifications, introducing the product highlights, architecture, features, and system capacity, among other aspects.

1.2 Highlights

- Access Functionality: Supports 4G/5G data services, VoLTE, VoNR.
- Synchronization: Supports GNSS, 1588v2, and 4G air interface synchronization.
- Backhaul Functionality: Supports PON backhaul and IPRAN/STN backhaul.
- Security Authentication: IPSec encryption, certificate authentication, and more.
- Auto Configuration: Supports plug-and-play with zero configuration upon power-up.
- Operation and Maintenance Management: Accesses the self-developed network management system for unified operation and maintenance management.

1.3 Application Scenarios

The product is primarily used for 5G edge coverage in areas such as tourist attractions, high-end villa complexes, large indoor parking lots, and regions requiring 5G coverage. It is also suitable for 5G vertical industry applications, including smart mines, underground operations, smart factories, and more.

Villa

Tourist Attraction

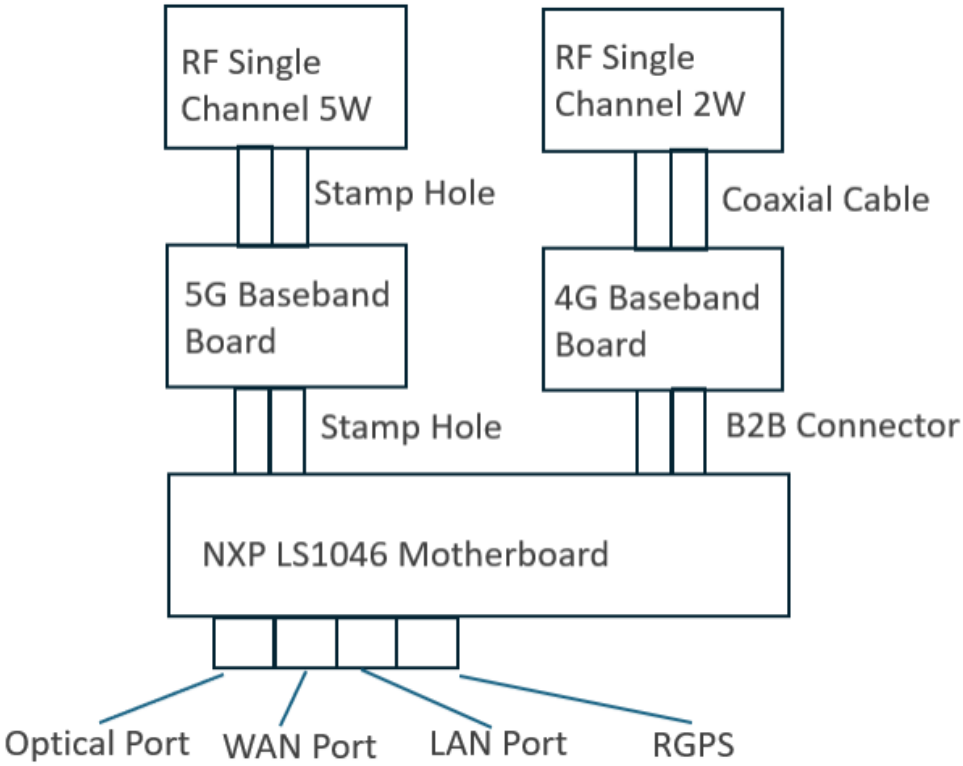
Factory

Mines

2. System Structure

2.1 Product Appearance

The 4+5G Mid Power Integrated Base Station consists of a network processing unit, baseband unit, and radio frequency (RF) unit, providing wireless network access for users.



The 4+5G Mid Power Integrated Base Station offers both 4G and 5G base station functions, allowing 5G to operate independently or 4G and 5G to operate simultaneously.

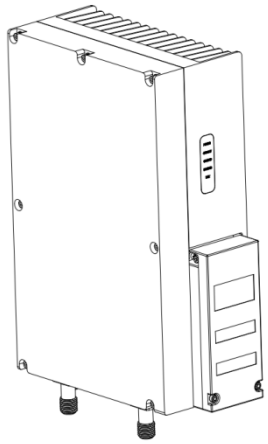
The 4G/5G baseband board does not include an RF module; the RF module is integrated into the mainboard. The 5G RF supports a single-channel power of 5 watts, while the 4G RF supports a single-channel power of 2 watts.

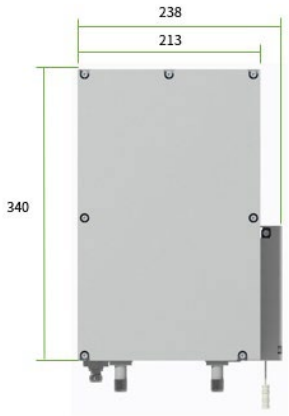
Both the 5G baseband board and 4G baseband board connect to the NXP mainboard via connectors. The mainboard supports optical ports, WAN ports, RGPS ports, and LAN ports. It facilitates 4G/5G data backhaul through either the same RJ45 gigabit Ethernet port or a 10G optical port.

Clock synchronization with the watt-level dual-mode base station is achieved via an external clock synchronization module (RJ45 interface)—synchronizing the clock to the 5G board, which in turn synchronizes the clock to the 4G board.

2.2 Hardware architecture

2.2.1 Product Schematic Diagram





2.2.2 Ports and Connectors

Connectors	Item	Description
Fiber Interface	2 × 10GE Optical Ports	SFP: Used for IPRAN/STN transmission and device cascading.
Other Interfaces	1 × 1GE WAN Port	Used to connect to PON gateways and other devices.
	1 × RGPS Port	Connects to the RGPS module for GNSS synchronization
	1 × LAN Port	Used for local Web management
	1 × AC or DC	220V AC power or 48V DC power

2.2.3 Indicator lights

Function	Status Description	Remark
Power	Steady on, Red indicates a fault.	1
5G Synchronization	Off when unsynchronized, Blue blinking during synchronization, Blue steady when synchronized, Red for fault.	1
4G Synchronization	Off when unsynchronized, Blue blinking during synchronization, Blue steady when synchronized, Red for fault.	1
Link Backhaul	Blue on when linked, off when not linked.	1
4G/5G Alarm Indicator	5G: Off when normal, Red for fault, 4G: Off when normal, Blue for fault.	1

3. Technical Specifications

3.1 System Specifications

Item	Spec.
5G	
Frequency Range	3300–3600 MHz (N78)
Bandwidth	100 MHz.
Transmit Power	5W (37 dBm)
MIMO	2T2R
Peak Data Rate	UL ＞300 Mbps, DL ＞700 Mbps
User Capacity	128 Active Users 256 Connected Users
Coverage Distance	Radius of 200 meters
4G	
Frequency Range	UL 1735–1785 MHz / DL 1830–1880 MHz (FDD B3)
Bandwidth	20 MHz
Transmit Power	2W (33 dBm)
MIMO	2T2R
Peak Data Rate	UL 70 Mbps, DL 130 Mbps
User Capacity	64 Active Users 128 Connected Users

3.2 Physical Parameters

Table 3 -2 Physical Parameters

Type	Index
Dimensions	340 x 213 x 110mm
Weight	<8.0kg
Volume	<8.0L

Table 3 -2 Antenna Type

Product Model	Antenna Type
NVBR.20081	External antenna
NVBR.20061	Internal antenna
NVBR.20076	External antenna

3.3 Power Supply

3.3.1 Voltage Indicators

Table 3 -3 Power Supply

Voltage	Spec.	Efficiency	Certification	Operating Environment & Lifespan	Corresponding Product Code
AC-DC	Derating > 20%	⩾ 87%	Meets safety standards	Operating Temperature: -40 – 50℃ Continuous Lifespan: Over 8 years	SBR.20076 SBR.20081
DC-DC	Derating > 30%	⩾ 85%			SBR.20061

3.3. 2 Power Consumption

Table 3 -4 Power Consumption

Configuration	Power consumption (W)
Single cell	<90W

3.4 Environmental

Table 3 -4 Environmental indicators

Item	**Spec.**
Ambient Temperature	-40 ~ + 55 °C
Environment Humidity	5%~95%
Waterproof And Dustproof Grade	IP 65
Air Pressure Range	70 ~ 106kPa
Altitude	500m

3.5 Electromagnetic Compatibility

Complies with 3GPP TS 38.113 (2017-12 R15) .

3.6 Reliability

Table 3 -6 Reliability

type	**index**
M TBF	150000hours（＜25℃）
Life Span	10 years

3.7 Installation Method

Supports wall-mounted and pole-mounted installation methods.