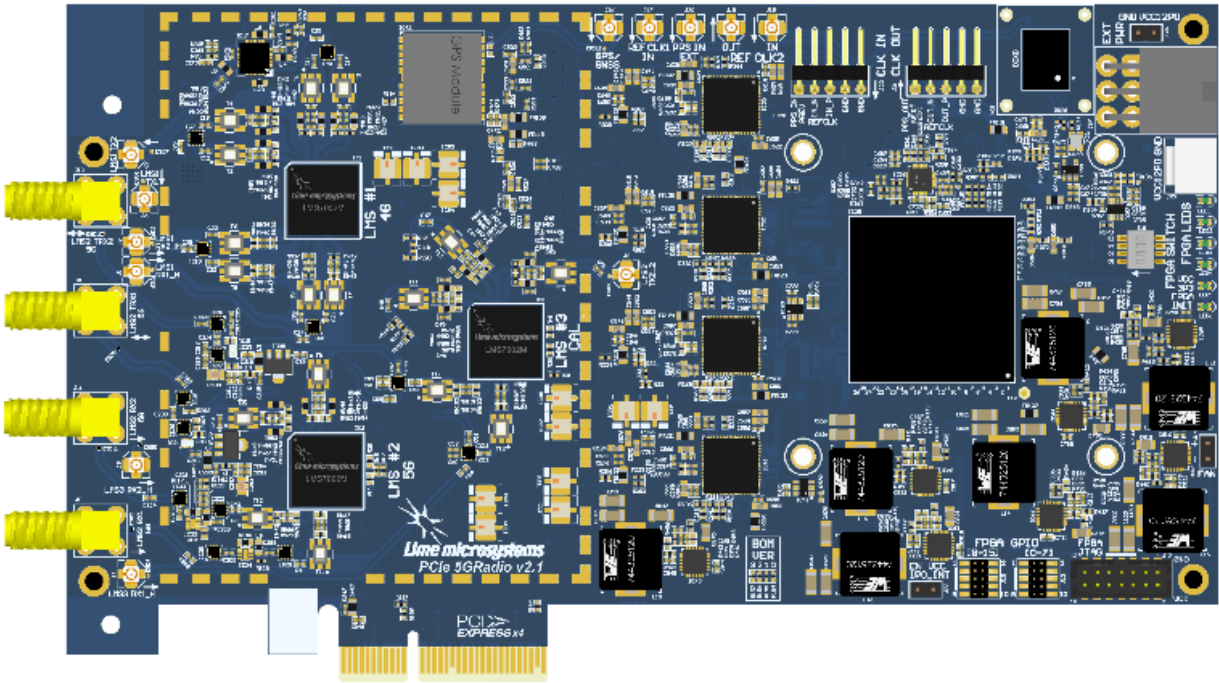


Features and Specifications

SDR Card



Software Defined Radio (SDR) with integrated front end – LimeNET is built on LimeSDR software-defined radio technology to deliver an app-enabled network solution covering any standard from IoT to 5G. Use of Lime’s SDR platform provides the most flexible radio hardware solution that enables numerous applications from IoT to 5G and small-cell configurations and services. It could be used to create on-demand network solutions where services could be easily offered for any Telco centric services. LimeNET comes pre-equipped with a flexible front-end module that provides filtering and amplification.

Table 1: LimeSDR Features and Specifications.

RF Chipset	3x Lime Microsystems LMS7002M FPRF
RF LO frequency ¹	30MHz – 3.8GHz
RF channels	2x2 MIMO for 5G, 2x2 MIMO for 4G, 2x RX for spectrum monitoring and 2x TX for calibrations

RF bandwidth	4G: up to 40MHz
	5G: up to 100MHz
Default supported bands ²	4G: B1, B3, B7 or B28
	5G: n48, n78 ³
FPGA family	Xilinx Artix7, XC7A200T
PCIe generation	Gen 2, x4, 2000MB/s
Clock oscillator	VCOCXO, VCTCXO, CDCM6208
Location services	Galileo, Glonass, GPS, Beidu

Note

- ¹Continuous coverage.
- ²Other bands possible by request.
- ³Subset of 3.4-3.6GHz supported by default.

x86 Subsystem

Table 2: Typical LimeNET x86 System Features and Specifications.

CPU ^{1,2}	AMD, Ryzen 7 5700G, 8C/16T or Ryzen 9 5900X, 12C/24T, 4.60GHz
Motherboard ¹	GIGABYTE, X570 AORUS PRO, AT
RAM ²	16GB, DDR4, 3600MHz (up to 128GB)
Storage ^{1,2}	500GB SATA SSD
Cooling ¹	Liquid/air combination

x86 subsystem case	4U rackmount server chassis
LimeNET system case	Indoor, IP20, Rack type, 7U size, 60x45x40cm (WxLxH). Houses all hardware parts except Antenna.

Note

- ¹Vendor may vary.
- ²Specification may be customised.

RF Front-End

Table 3: Typical LimeNET RF Front-end Features and Specifications.

Front-end module ^{1,2,3}	Output power: <33dBm, Noise Figure: <2dBm, ACPR: >45dB ⁴
Front-end module supply ^{1,3}	>100W AC-DC converter
Band filter/duplexer ^{1,2,5}	Cavity type, SMA (female) output
Antenna ^{1,2,6}	MIMO, 5G ready, Frequency bands: 698-960MHz; 1710-2700MHz; 3200-3800MHz, up to 6dBi, IP68, SMA (male), feed power handling up to 10W
User test equipment ¹	5G ready, supports 5G SA mode
SIM card ^{1,7}	2FF-4FF, Ready-to-use with LimeNET devices

Note

- ¹Vendor may vary.
- ²Specific band or channel restrictions may vary depending on specific requirements (e.g. N78, N48, N41 etc.)
- ³Power can be changed depending on specific requirements.

- ⁴At maximum output power, LTE test waveform, 20MHz, PAPR 10dB.
- ⁵Output connector can be changed depending on specific requirements.
- ⁶Antenna parameters be changed depending on specific requirements.
- ⁷Pre-programmed SIM cards can be supplied depending on specific requirements.

4G/5G Backhaul

Table 4: Typical LimeNET RF Front-end Features and Specifications.

Module ¹	4G: EM7690 Cat-20 LTE-Advanced Pro Module
	5G: EM9191 5G NR Sub-6 GHz Module
Data rate	4G: Peak Download Rate 2Gb/s; Peak Upload Rate 211Mb/s
	5G: Peak Download Rate 4.5Gb/s; Peak Upload Rate 660Mb/s
Supported bands	4G: B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B18, B19, B20, B21, B25, B26, B28, B29, B30, B32, B34, B38, B39, B40, B41, B42, B43, B46, B48, B66, B71
	5G: n1, n2, n3, n5, n7, n8, n12, n20, n25, n28, n38, n40, n41, n48, n66, n71, n77, n78, n79
Antenna ^{1,2,3}	MIMO, 5G ready, Frequency bands: 698-960MHz; 1710-2700MHz; 3200-3800MHz, up to 6dBi, IP68, SMA (male), feed power handling up to 10W

Note

- ¹Vendor may vary.

- ²Specific band or channel restrictions may vary depending on specific requirements (e.g. N78, N48, N41 etc.)
- ³Antenna parameters can be changed to meet specific requirements.

Software

Table 5: Typical LimeNET Software Features and Specifications.

4G/5G stack	Amarisoft: eNB/gNB, EPC/5GC functionality (pre-installed)
Front-end module control	Lime Microsystems: gain, power control; automatic output power level limitation; temperature and forward, reverse power information; SWR, over temperature, over power warnings (pre-installed)
Operating system ¹	Ubuntu LTS (pre-installed)

Note

- ¹Ubuntu is required for LimeNET app store support.