

Nordic Product Guide

This handy summary describes all of Nordic's IoT solutions

Full product details at: www.nordicsemi.com/Products

RF SoCs and SiPs

		nRF91 SERIES	nRF70 SERIES	nRF54 SERIES	nRF54L SERIES	nRF53 SERIES	nRF52 SERIES
IC TYPE		Wireless SiP	Wi-Fi Companion IC	Wireless SoC	Wireless SoC	Wireless SoC	Wireless SoC
ICs		nRF9160, nRF9151	nRF7002, nRF7001, nRF7000	nRF54H20	nRF54LM20B, nRF54LM20A, nRF54L15, nRF54L10, nRF54L05, nRF54LV10A	nRF5340	nRF52840, nRF52833, nRF52832, nRF52820, nRF52811, nRF52810, nRF52805
WIRELESS	LTE-M, NB-IoT, GNSS	Yes					
	NON-TERRESTRIAL NETWORKS (NTN), DECT NR+	Yes (nRF9151 only)					
	DUAL-BAND WI-FI 6		Yes (with host)	Yes (with nRF70 Series)	Yes (with nRF70 Series)	Yes (with nRF70 Series)	Yes (with nRF70 Series)
	WI-FI LOCATIONING	Yes (with nRF70 Series)	Yes (with host)	Yes (with nRF70 Series)	Yes (with nRF70 Series)	Yes (with nRF70 Series)	Yes (with nRF70 Series)
	BLUETOOTH LE			Yes	Yes	Yes	Yes
	BLUETOOTH CHANNEL SOUNDING			Yes	Yes		
	BLUETOOTH LE AUDIO			Yes		Yes	
	BLUETOOTH MESH, ZIGBEE, THREAD, MATTER, AMAZON SIDEWALK, NFC			Yes	Yes	Yes	Yes
MCU FUNCTIONALITY	ESB AND 2.4 GHz PROPRIETARY PROTOCOLS			Yes up to 4 Mbps	Yes up to 4 Mbps	Yes up to 2 Mbps	Yes up to 2 Mbps
	PROCESSOR	64 MHz Arm Cortex-M33		2x Arm Cortex-M33, up to 320 MHz	128 MHz Arm Cortex-M33	2x Arm Cortex-M33, up to 128 MHz	64 MHz Arm Cortex-M4
	AI ACCELERATOR				128 MHz NPU		
	COPROCESSOR			2x RISC-V, 320 MHz and 16 MHz	RISC-V, 128 MHz		
	NVM	1MB		2 MB	Up to 2 MB	1MB + 256 KB	Up to 1MB
	RAM	256 KB		1MB	Up to 512 KB	512 KB + 64 KB	Up to 256 KB
	STANDARD PERIPHERALS AND INTERFACES	Yes	High-speed SPI/QSPI	Yes	Yes	Yes	Yes
SECURITY	HIGHLIGHTED DIGITAL INTERFACES			High-speed USB, CAN-FD	High-speed USB	Full-speed USB	Full-speed USB
	ISOLATION	TrustZone		Secure Domain and TrustZone	TrustZone	TrustZone	
	CRYPTOGRAPHIC ACCELERATOR	Yes		Yes with side-channel leakage protection	Yes with side-channel leakage protection	Yes	Yes
TAMPER DETECTORS				Yes	Yes		
GPIOs		32		64	Up to 66	48	Up to 48
PACKAGE TYPES		LGA	QFN, CSP	CSP	QFN, CSP	aQFN, CSP	aQFN, QFN, CSP
MINIMUM PACKAGE SIZE		12x11x1mm	3.8x3.4 mm	4.7x4.3 mm	1.9x2.3 mm	3.5x3.6 mm	2.5x2.5 mm
Neuron EDGE AI MODELS		Yes	Yes	Yes	Yes	Yes	Yes
COMPATIBLE PMICs		nPM1300, nPM6001	nPM6001	nPM1300, nPM1100, nPM6001	nPM1300, nPM1100, nPM6001	nPM1300, nPM1100, nPM6001	nPM1300, nPM1100, nPM6001
nRF Cloud SERVICES		Yes	Yes	Yes	Yes	Yes	Yes

PMICs **nPM** 
FAMILY

		nPM6001	nPM2100	nPM1304	nPM1300	nPM1100
TYPE	PMIC	●	●	●	●	●
FEATURES	BUCK REGULATOR	4		2	2	1
	BOOST REGULATOR		1			
	BATTERY CHARGER			●	●	●
	LDO		1	2	2	2
	LOAD SWITCH		1	2	2	
CHARGER/BATTERY	TERMINATION VOLTAGE			3.5 to 4.65 V	3.5 to 4.45 V	4.1 to 4.2 V or 4.25 to 4.35 V
	MAX CHARGING CURRENT			100 mA	800 mA	400 mA
	POWER PATH MANAGEMENT					●
	THERMAL PROTECTION					●
	BATTERY COMPATIBILITY		LiMnO ₂ , AA/AAA 1s or 2s, Silver Oxide	LiFePO ₄ , Li-ion, LiPo	LiFePO ₄ , Li-ion, LiPo	Li-ion, LiPo
	INPUT VOLTAGE	3 to 5.5 V	0.7 to 3.4 V	4 to 5.5 V	4 to 5.5 V	4.1 to 6.7 V
	USB COMPLIANCE			Type-C	Type-C	
POWER RAILS	REGULATED OUTPUT VOLTAGE	0.5 to 3.3 V	1.8 to 3.3 V	1 to 3.3 V	1 to 3.3 V	1.8 to 3 V
	MAX CURRENT PER DC/DC	550 mA, 200 mA, 150 mA, 150 mA	150 mA	200 mA, 200 mA	200 mA, 200 mA	150 mA
SYSTEM MANAGEMENT	SYSTEM MONITORING		Battery-voltage and -temp (derived from die temp)	System-, input bus- and battery-voltage; battery-current and -temp; die temp	System-, input bus- and battery-voltage; battery-current and -temp; die temp	
	FUEL GAUGE		●	●	●	
	HARD SYSTEM RESET		●	●	●	
	TIMED WAKE-UP (HIBERNATE)		●	●	●	
	WATCHDOG TIMER	●	●	●	●	
	SHIP MODE	●	●	●	●	●
	BROWN-OUT DETECTOR	●	●	●	●	●
	LED DRIVERS, GPIOs	0,3	0,2	3,5	3,5	2,0
	CONTROL INTERFACE	TWI	TWI	TWI	TWI	Pin-configurable
	REGULATORY COMPLIANCE	CE, RoHS	CE, RoHS	CE, JEITA, RoHS	CE, JEITA, RoHS	CE, JEITA, RoHS
	OPERATING TEMPERATURE	-40 to 85°C	-40 to 85°C	-40 to 85°C	-40 to 85°C	-40 to 85°C
	EVALUATION KITS	nPM6001EK	nPM2100 EK	nPM1304 EK	nPM1300 EK	nPM1100 EK
	PACKAGE OPTIONS	2.2x3.6 mm CSP	4x4 mm QFN16, 1.9x1.9 mm CSP	5.5 mm QFN32, 3.1x2.4 mm CSP	5x5 mm QFN32, 3.1x2.4 mm CSP	4x4 mm QFN24, 2.1x2.1 mm CSP

Cloud lifecycle services
nRF Cloud powered by Memfault

Description:

Following Nordic's acquisition of Memfault, nRF Cloud now provides device management, embedded observability and location services, optimized for all Nordic's low power IoT devices. Both device-to-cloud and cloud-to-cloud implementations are supported as are CoAP and MQTT protocols.

Services:

nRF Cloud provides critical cloud operational infrastructure and modern embedded development tools pre-integrated and power-optimized for Nordic devices. With nRF Cloud teams can accelerate development, launch with more confidence and operate in production more efficiently.

nRF Cloud device management includes general fleet management services, message routing and storage, and a firmware-over-the-air (FOTA) update function, whereby modem and/or application firmware can be updated automatically and remotely. Device management simplifies management of IoT fleets in the field and ensures they remain secure and reliable across their lifecycle.

nRF Cloud embedded observability automates the collection of core dumps, crash logs, and performance metrics from devices in the field and makes it available for analysis and investigation. With observability, engineering teams can identify and resolve faults in the field much faster, monitor performance easily, and identify improvements based on real world data. This helps teams accelerate field testing, improve reliability in production, and ship software updates with more confidence.

nRF Cloud location services include Assisted GPS, Predictive GPS, Wi-Fi, single-cell and multi-cell, and supply accurate and power-efficient location data for IoT devices employing nRF91 Series products. The Wi-Fi feature requires a Wi-Fi scanning IC, such as one of the nRF70 Series Companion ICs. Each location feature has accuracy and power efficiency benefits, so switching between different location services during operation can be useful.

All nRF Cloud services are available to try for free for Nordic customers on up to 10 non-production devices, can be integrated in minutes, and scale at very low cost.

Tech Spec
Supported products

All wireless products

Location services

A-GPS, P-GPS, Wi-Fi, Single-Cell, Multi-Cell

Additional features

Device-to-cloud and cloud-to-cloud use cases, CoAP, MQTT and REST API support

Applications

Consumer electronics, Industrial, smart appliances, access control, asset tracking, RTLS