

Stand-alone Bluetooth modules



	Bluetooth modules									
	NORA-B100	NORA-B101	NORA-B106	NORA-B120	NORA-B121	NORA-B126	NINA-B501A	NINA-B506A	NINA-B501	NINA-B506
Grade										
Automotive							•	•		
Professional	•	•	•	•	•	•			•	•
Standard										
Physical										
Image										
Size [mm]	10.4 × 14.3 × 1.7						10.0 × 11.6 × 2.4 / 10.0 × 15.0 × 2.4			
Operating temperature [°C]	-40 to +105						-40 to +105		-40 to +85	
Radio										
Chip inside	nRF5340						KW45	K32W148		
Bluetooth qualification version	5.2	5.2	5.2	5.2	5.2	5.2	5.3	5.3	5.3	5.3
Bluetooth Low Energy	•	•	•	•	•	•	•	•	•	•
Thread / Zigbee	•	•	•	•	•	•			•	•
NFC	•	•	•	•	•	•				
Max range [meters]	700	700	400	1700	1700	1500	1400	1400	1400	1400
Bluetooth output power EIRP [dBm]	8	8	5	18	18	15	13	13	13	13
Antenna type (see footnotes)	U.FL	pin	pcb	U.FL	pin	pcb	pin	pcb	pin	pcb
Application software										
Open CPU for embedded applications	•	•	•	•	•	•	•	•	•	•
Interfaces										
FlexCAN / CAN FD and LIN bus							◆	◆		
UART	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
SPI	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
I2C	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
I2S	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
USB	◆	◆	◆	◆	◆	◆				
PDM and/or PWM	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
GPIO pins	48	48	48	46	46	46	29	29	29	29
AD converters [number of bits]	12	12	12	12	12	12	16	16	16	16
Features										
Direction finding (AoA/AoD)	◆	◆	◆	◆	◆	◆				
MCU	Dual-core Arm® Cortex-M33						Arm® Cortex-M33 and -M3 and -M0+			
RAM [kB] (application + network cores)	512 + 64			512 + 64			128 + 88			
Flash [kB] (application + network cores)	1024 + 256			1024 + 256			1024 + 256			
Matter	◆	◆	◆	◆	◆	◆			◆	◆
Maximum Bluetooth connections	>20	>20	>20	>20	>20	>20	24	24	24	24
Bluetooth long range	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Bluetooth mesh	◆	◆	◆	◆	◆	◆				
Bluetooth LE audio	◆	◆	◆	◆	◆	◆				
Bluetooth Channel Sounding-ready							◆	◆	◆	◆
Arm TrustZone®	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Security Root of Trust	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
On-the-fly flash encryption							◆	◆	◆	◆
Simultaneous GATT server and client	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Throughput [Mbit/s]	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Secure boot	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
FOTA	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Dual-PAN HW support									◆	◆

pin = Antenna pin
pcb = Internal PCB antenna

U.FL = U.FL antenna connector

◆ = Feature enabled by hardware. Actual support depends on open CPU app software.

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Stand-alone Bluetooth modules



	Bluetooth modules											
	NINA-B400	NINA-B401	NINA-B406	NINA-B410	NINA-B411	NINA-B416	NINA-B301	NINA-B302	NINA-B306	NINA-B311	NINA-B312	NINA-B316
Grade												
Automotive												
Professional												
Standard	•	•	•	•	•	•	•	•	•	•	•	•
Physical												
Image												
Size [mm]	10.0 x 15.0 x 2.2 / 10.0 x 11.6 x 2.2						10.0 x 11.6 x 2.2		10.0 x 15.0 x 3.8		10.0 x 15.0 x 2.2	
Operating temperature [°C]	-40 to +105						-40 to +85					
Radio												
Chip inside	nRF52833						nRF52840					
Bluetooth qualification version	5.1	5.1	5.1	5.1	5.1	5.1	5.0	5.0	5.0	5.0	5.0	5.0
Bluetooth Low Energy	•	•	•	•	•	•	•	•	•	•	•	•
Thread / Zigbee	•	•	•				•	•	•			
NFC	•	•	•	•	•	•	•	•	•	•	•	•
Max range [meters]	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Bluetooth output power EIRP [dBm]	11	11	11	11	11	11	10	10	10	10	10	10
Antenna type (see footnotes)	U.FL	pin	pcb	U.FL	pin	pcb	pin	metal	pcb	pin	metal	pcb
Application software												
u-connectXpress				•	•	•				•	•	•
Open CPU for embedded applications	•	•	•				•	•	•			
Interfaces												
UART	◆	◆	◆	2	2	2	◆	◆	◆	2	2	2
SPI	◆	◆	◆				◆	◆	◆			
I2C	◆	◆	◆				◆	◆	◆			
I2S	◆	◆	◆				◆	◆	◆			
USB	◆	◆	◆				◆	◆	◆			
PDM and PWM	◆	◆	◆				◆	◆	◆			
GPIO pins	40	40	40	26	26	26	38	38	38	28	28	28
AD converters [number of bits]	12	12	12				12	12	12			
Features												
AT command interface				•	•	•				•	•	•
Direction finding (AoA/AoD)	◆	◆	◆									
MCU (see footnotes)	M4F	M4F	M4F				M4F	M4F	M4F			
RAM [kB]	128	128	128				256	256	256			
Flash [kB]	512	512	512				1024	1024	1024			
Matter							◆	◆	◆			
Maximum Bluetooth connections	20	20	20	8	8	8	20	20	20	8	8	8
Bluetooth long range	◆	◆	◆	•	•	•	◆	◆	◆	•	•	•
Bluetooth mesh	◆	◆	◆				◆	◆	◆	•	•	•
Low Energy Serial Port Service				•	•	•				•	•	•
Simultaneous GATT server and client	◆	◆	◆	•	•	•	◆	◆	◆	•	•	•
Throughput [Mbit/s]	1.4	1.4	1.4	0.8	0.8	0.8	1.4	1.4	1.4	0.8	0.8	0.8
Secure boot	◆	◆	◆	•	•	•	◆	◆	◆	•	•	•
FOTA	◆	◆	◆				◆	◆	◆			

U.FL = U.FL antenna connector
pin = Antenna pin
pcb = Internal PCB antenna
metal = Internal metal PIFA antenna

M4F = 64 MHz Arm® Cortex-M4 with FPU

◆ = Feature enabled by hardware. The actual support depends on the open CPU application software.

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Stand-alone Bluetooth modules



	Bluetooth modules						Antenna boards			
	ANNA-B402	ANNA-B412	ANNA-B112	NINA-B221	NINA-B222	NINA-B111	NINA-B112	ANT-B10	ANT-B11	
Grade										
Automotive										
Professional	•	•	•	•	•	•	•	•	•	
Standard										
Physical										
Image										
Size [mm]	6.5 x 6.5 x 1.2			10 x 10.6 x 2.2 / 10 x 14.0 x 3.8				126 x 126	29.5 x 93.5	
Operating temperature [°C]	-40 to +105		-40 to +85		-40 to +85				-40 to +85	-40 to +85
Radio										
Chip inside	nRF52833		nRF52832		ESP32		nRF52832		nRF52833	nRF52833
Bluetooth qualification version	5.1	5.1	5.0		4.2	4.2	5.0	5.0	5.1	5.1
Bluetooth Low Energy	•	•	•		•	•	•	•	•	•
Bluetooth BR/EDR					•	•				
Thread / Zigbee	•									
NFC	•	•	•						•	•
Max range [meters]	800 / 1400*		160 / 190*		200	200	350	350	70	70
Bluetooth output power EIRP [dBm]	9 / 13*		5 / 8*		8	8	7	6	N.A.	N.A.
Antenna type (see footnotes)	chip or pin		chip or pin		pin	metal	pin	metal	8 patch elements	3 patch elements
Application software										
u-locateEmbed <small>(was previously named u-connectLocate)</small>									•	•
u-connectXpress	•	•	•	•	•	•	•	•		
Open CPU for embedded applications	•									
Interfaces										
UART	◆	2	◆	1	1	1	◆	1	◆	1
SPI	◆		◆		1	1	◆	◆	1	
I2C	◆		◆				◆	◆		
I2S	◆		◆				◆	◆		
USB	◆								1	
PDM and PWM	◆		◆				◆	◆		
GPIO pins	33	19	25	11	16	16	19	7	19	7
AD converters [number of bits]	12		12				12		12	
Features										
AT command interface	•		•		•		•		•	•
Direction finding (AoA/AoD)	◆	•							•	•
MCU (see footnotes)	M4F		M4F						M4F	M4F
RAM [kB]	128		64						64	64
Flash [kB]	512		512						512	512
Low Energy Serial Port Service	•		•		•		•			
Simultaneous GATT server and client	◆	•	◆	•	•	•	◆	•	◆	•
Throughput [Mbit/s]	1.4	0.8	1.4	0.8	1.0	1.0	1.4	0.8	1.4	0.8
Maximum Bluetooth connections	20	8	20	7	8	8	20	7	20	7
Bluetooth mesh	◆	•	◆	•					◆	
Secure boot	◆	•							•	•
FOTA	◆		◆						◆	

pin = Antenna pin
 metal = Internal metal PIFA antenna
 chip = Internal chip antenna

M4F = 64 MHz Arm® Cortex-M4 with FPU
 * = Different values for use with internal or external antenna

◆ = Feature enabled by hardware. The actual support depends on the open CPU application software.

Stand-alone Bluetooth modules



Grade

Automotive
Professional
Standard

Physical

Image

Bluetooth modules									
BMD-360	BMD-380	BMD-340	BMD-341	BMD-345	BMD-350	BMD-301	BMD-300	BMD-330	
•	•	•	•	•	•	•	•	•	•



Size [mm]	9.8 x 14.0 x 1.9	7.5 x 9.5 x 1.5	10.2 x 15.0 x 1.9			6.4 x 8.6 x 1.5	9.8 x 14.0 x 1.9		
Operating temperature [°C]	-40 to +85								
Radio									
Chip inside	nRF52811	nRF52840				nRF52832			nRF52810
Bluetooth qualification version	5.1	5.1	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Bluetooth Low Energy	•	•	•	•	•	•	•	•	•
Thread	•	•	•	•	•				
Zigbee		•	•	•	•				
NFC		•	•	•	•	•	•	•	
Max range [meters]	200	500	500	750	1700	190	400	200	200
Bluetooth output power EIRP [dBm]	3	7	7	11	18	5	9	3	3
Antenna type (see footnotes)	pcb	chip	pcb	U.FL	U.FL	chip	U.FL	pcb	pcb
Application software									
Open CPU for embedded applications	•	•	•	•	•	•	•	•	•
Interfaces									
UART	◆	◆	◆	◆	◆	◆	◆	◆	◆
SPI	◆	◆	◆	◆	◆	◆	◆	◆	◆
I2C	◆	◆	◆	◆	◆	◆	◆	◆	◆
I2S		◆	◆	◆	◆	◆	◆	◆	
USB		◆	◆	◆	◆				
PDM and PWM	◆	◆	◆	◆	◆	◆	◆	◆	◆
GPIO pins	32	44	48	48	44	32	32	32	32
AD converters [number of bits]	12	12	12	12	12	12	12	12	12
Features									
Direction finding (AoA/AoD)	◆								
MCU (see footnotes)	M4	M4F	M4F	M4F	M4F	M4F	M4F	M4F	M4
RAM [kB]	24	256	256	256	256	64	64	64	24
Flash [kB]	192	1024	1024	1024	1024	512	512	512	192
Matter		◆	◆	◆	◆				
Maximum Bluetooth connections	4	20	20	20	20	20	20	20	4
Bluetooth mesh		◆	◆	◆	◆	◆	◆	◆	
Bluetooth long range	◆	◆	◆	◆	◆				
Simultaneous GATT server and client	◆	◆	◆	◆	◆	◆	◆	◆	◆
Throughput [Mbit/s]	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Secure boot		◆	◆	◆	◆				
FOTA	◆	◆	◆	◆	◆	◆	◆	◆	◆

chip = Internal chip antenna
pin = Antenna pin
pcb = Internal PCB antenna
U.FL = U.FL antenna connector

M4 = 64 MHz Arm® Cortex-M4
M4F = 64 MHz Arm® Cortex-M4 with FPU

◆ = Feature enabled by hardware. The actual support depends on the open CPU application software.

Stand-alone short range radio modules



♦ Multiradio (Wi-Fi and Bluetooth)																												
	NORA-W301		NORA-W306		NORA-W361		NORA-W366		NORA-W251 AWS		NORA-W256 AWS		NORA-W101 -00B		NORA-W106 -00B		NORA-W106 -10B		IRIS-W101		IRIS-W106		IRIS-W161		IRIS-W166			
Grade																												
Automotive																												
Professional																												
Standard																												
Physical																												
Image																												
Size [mm]	10.4 × 14.3 × 1.9								10.4 × 14.3 × 1.8								14.6 × 16.8 × 2.1 / 14.6 × 20.9 × 2.1											
Operating temperature [°C]	-40 to +85																											
Radio																												
Chip inside	Realtek RTL8720DF				ESP32-S3				ESP32-S3				NXP RW612				NXP RW610											
Bluetooth qualification version	5.3		5.3		5.0		5.0		5.3		5.3																	
Bluetooth Low Energy																												
Thread																												
Bluetooth output power EIRP [dBm]	TBD		TBD		8		8		10		10		10		TBD		TBD		TBD		TBD		TBD		TBD			
Wi-Fi band [GHz]	2.4 and 5		2.4 and 5		2.4		2.4		2.4		2.4		2.4		2.4 and 5		2.4 and 5		2.4 and 5		2.4 and 5		2.4 and 5		2.4 and 5			
Wi-Fi IEEE 802.11 standards	a/b/g/n		a/b/g/n		b/g/n		b/g/n		b/g/n		b/g/n		b/g/n		a/b/g/n/ax		a/b/g/n/ax		a/b/g/n/ax		a/b/g/n/ax		a/b/g/n/ax		a/b/g/n/ax			
Wi-Fi output power EIRP [dBm]	TBD		TBD		20		20		20		20		20		TBD		TBD		TBD		TBD		TBD		TBD			
Max Wi-Fi range [meters]	TBD		TBD		500		500		500		500		500		TBD		TBD		TBD		TBD		TBD		TBD			
Antenna type (see footnotes)	pin		pcb		pin		pcb		pin		pcb		pcb		pin		pcb		pin		pcb		pin		pcb			
Application software																												
AWS IoT ExpressLink																												
u-connectXpress																												
Open CPU for embedded apps																												
Interfaces																												
UART																												
USB																												
SDIO																												
SPI																												
I2C																												
I2S																												
RMII																												
GPIO pins	21		21						38		38		33		64		64		64		64		64		64			
AD converters [number of bits]	12		12						12		12		12		16		16		16		16		16		16			
Features																												
AT command interface																												
MCU (see footnotes)	M33 + M23		M33 + M23		LX7		LX7		LX7		LX7		LX7		M33		M33		M33		M33		M33		M33			
RAM [kB]	512		512		512		512		512		512		8192		1200		1200		1200		1200		1200		1200			
Flash [MB]	4		4		8		8		8		8		ext		8		8		8		8		8		8			
Matter																												
Bluetooth LE audio																												
Maximum Bluetooth connections	3		3		1		1		7		7		7		TBD		TBD		TBD		TBD		TBD		TBD			
Micro Access Point [max stations]	5		5		5		5		10		10		10		TBD		TBD		TBD		TBD		TBD		TBD			
Wi-Fi throughput [Mbit/s]	TBD		TBD		20		20		150		150		150		TBD		TBD		TBD		TBD		TBD		TBD			
Wi-Fi enterprise security																												
End-to-end security (TLS)																												
Secure boot																												
WPA3																												

pin = Antenna pin
 metal = internal metal PIFA antenna
 pcb = Internal PCB antenna
 ext = External flash required

LX7 = 240 MHz dual-core Xtensa LX7
 M33 = 260 MHz Arm® Cortex-M33
 M23 = 20 MHz Arm® Cortex-M23

♦ = Feature enabled by hardware. The actual support depends on the open CPU application software.

Stand-alone short range radio modules



	Multiradio (Wi-Fi and Bluetooth)									Wi-Fi	
	ODIN-W260	ODIN-W262 ODIN-W263	NINA-W151	NINA-W152	NINA-W156	NINA-W101	NINA-W102	NINA-W106	NINA-W131	NINA-W132	
Grade											
Automotive											
Professional	•	•	•	•	•	•	•	•	•	•	
Standard											
Physical											
Image											
Size [mm]	14.8 x 22.3 x 3.2/4.7			10.0 x 10.6 x 2.2 / 10.0 x 14.0 x 3.8 / 10.0 x 14.0 x 2.2							
Operating temperature [°C]	-40 to +85										
Radio											
Chip inside	WL1837		ESP32			ESP32			ESP32		
Bluetooth qualification version	4.2		4.2			4.2					
Bluetooth Low Energy	•	•	•	•	•	•	•	•			
Bluetooth BR/EDR	•	•	•	•	•	•	•	•			
Bluetooth output power EIRP [dBm]	14	11	8	8	8	8	8	8			
Wi-Fi band [GHz]	2.4 and 5		2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	
Wi-Fi IEEE 802.11 standards	a/b/g/n		b/g/n	b/g/n	b/g/n	b/g/n	b/g/n	b/g/n	b/g/n	b/g/n	
Wi-Fi output power EIRP [dBm]	18	15	18	18	18	18	18	18	18	18	
Max Wi-Fi range [meters]	300	250	500	400	400	500	400	400	500	400	
Antenna type (see footnotes)	U.FL	metal	pin	metal	pcb	pin	metal	pcb	pin	metal	
Application software											
u-connectXpress	•	•	•	•	•				•	•	
Open CPU for embedded apps						•	•	•			
Interfaces											
UART	1	1	1	1	1	◆	◆	◆	1	1	
SPI			1	1	1	◆	◆	◆	1	1	
I2C						◆	◆	◆			
I2S						◆	◆	◆			
RMII	1	1	1	1	1	◆	◆	◆	1	1	
GPIO pins	23	23	16	16	18	24	24	26	16	16	
AD converters [number of bits]						12	12	12			
Features											
AT command interface	•	•	•	•	•				•	•	
MCU (see footnotes)						LX6	LX6	LX6			
RAM [kB]						520	520	520			
Flash [MB]						2	2	4 / 8			
Point-to-Point Protocol	•	•	•	•	•	◆	◆	◆	•	•	
Low Energy Serial Port Service	•	•	•	•	•	◆	◆	◆			
Maximum Bluetooth connections	7	7	8	8	8	8	8	8			
Micro Access Point [max stations]	10	10	10	10	10	10	10	10	10	10	
Wi-Fi throughput [Mbit/s]	20	20	13	13	13	25	25	25	16	16	
Wi-Fi enterprise security	•	•	•	•	•	◆	◆	◆	•	•	
End-to-end security (TLS)	•	•	•	•	•	◆	◆	◆	•	•	
Secure boot			•	•	•	◆	◆	◆	•	•	
WPA3			•	•	•	◆	◆	◆	•	•	

U.FL = U.FL connector(s) for external antenna
 metal = internal metal PIFA antenna
 pin = Antenna pin
 pcb = Internal PCB antenna

LX6 = 240 MHz dual-core Xtensa LX6

◆ = Feature enabled by hardware. The actual support depends on the open CPU application software.

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Host-based short range radio modules



	Multiradio (Wi-Fi and Bluetooth)											
	MAYA-W360	MAYA-W361	MAYA-W366	MAYA-W380	MAYA-W381	MAYA-W386	MAYA-W260	MAYA-W261	MAYA-W266	MAYA-W271	MAYA-W276	M2-MAYA-W271
Grade												
Automotive												
Professional	•	•	•	•	•	•	•	•	•	•	•	
Standard												
Physical												
Image												
Size [mm]	10.4 x 14.3 x 1.9						10.4 x 14.3 x 1.9			22 x 30 x 2.8		
Operating temperature [°C]	-40 to +85						-40 to +85			-40 to +85		
Radio												
Chip inside	IFX 55512			IFX 55513			NXP IW611		NXP IW612		NXP IW612	
Bluetooth qualification version	5.4						5.3			5.3		
Bluetooth Low Energy	•	•	•	•	•	•	•	•	•	•	•	•
Bluetooth BR/EDR	•	•	•	•	•	•	•	•	•	•	•	•
Bluetooth output power [dBm] *	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Wi-Fi output power [dBm] *	18	18	18	18	18	18	18	18	18	18	18	18
Wi-Fi IEEE 802.11 standards	a/b/g/n/ac/ax			a/b/g/n/ac/ax			a/b/g/n/ac/ax			a/b/g/n/ac/ax		
Wi-Fi band [GHz]	2.4 and 5			2.4, 5, and 6			2.4 and 5			2.4 and 5		
Maximum Wi-Fi channel width [MHz]	20	20	20	20	20	20	80	80	80	80	80	80
LTE filter	o	o	o	o	o	o	o	o	o	o	o	o
Antenna type (see footnotes)	2 U.FL	2 pin	pcb	2 U.FL	2 pin	pcb	2 U.FL	2 pin	pcb/pin	2 pin	pcb/pin	2 U.FL
Thread									•		•	
OS support												
Android / Linux drivers	•	•	•	•	•	•	•	•	•	•	•	•
RTOS (via NXP i.MX RT MCUs)							•	•	•	•	•	•
Interfaces												
High-speed UART [®]	1	1	1	1	1	1	1	1	1	1	1	1
SDIO [version] ^W	v3	v3	v3	v3	v3	v3	v3	v3	v3	v3	v3	v3
PCM/I2S (Bluetooth audio)	1	1	1	1	1	1	1	1	1	1	1	1
SPI host interface for Thread							1	1	1	1	1	1
Features												
Bluetooth long range	•	•	•	•	•	•	•	•	•	•	•	•
Bluetooth LE audio	•	•	•	•	•	•	•	•	•	•	•	•
Micro Access Point [max connects]	16	16	16	16	16	16	16	16	16	16	16	16
AES hardware support	•	•	•	•	•	•	•	•	•	•	•	•
Wi-Fi direct	•	•	•	•	•	•	•	•	•	•	•	•
Wi-Fi 802.11 mc												
WPA3	•	•	•	•	•	•	•	•	•	•	•	•
Factory-assigned MAC address in OTP	•	•	•	•	•	•	•	•	•	•	•	•
Factory calibrated RF in OTP	•	•	•	•	•	•	•	•	•	•	•	•
Simultaneous STA/AP roles												
Secure boot	•	•	•	•	•	•	•	•	•	•	•	•

B = Bluetooth only
W = Wi-Fi only
pin = 1 antenna pin for combined Bluetooth and Wi-Fi
2p = 2 antenna pins, one each for Bluetooth and Wi-Fi
3p = 3 pins, 2 for Wi-Fi and 1 for Bluetooth antenna
* = EIRP for embedded antennas; conducted for pins and connectors

U.FL = U.FL connector(s) for external antenna

o = On request

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Host-based short range radio modules



	Multiradio (Wi-Fi and Bluetooth)				Wi-Fi		
	MAYA-W160	MAYA-W161	MAYA-W166	M2-MAYA-W161	LILY-W131	LILY-W132	LILY-W133
Grade							
Automotive							
Professional	•	•	•		•	•	•
Standard							
Physical							



Size [mm]	10.4 x 14.3 x 1.9			22 x 30 x 2.8	10.0 x 14.0 x 2.2 / 3.8		
Operating temperature [°C]	-40 to +85			-40 to +85	-40 to +85		
Radio							
Chip inside	NXP IW416			NXP IW416	NXP 88W8801		
Bluetooth qualification version	5.2			5.2			
Bluetooth Low Energy	•	•	•	•			
Bluetooth BR/EDR	•	•	•	•			
Bluetooth output power [dBm] *	10	10	10	10			
Wi-Fi output power [dBm] *	18	18	18	18	19	15	15
Wi-Fi IEEE 802.11 standards	a/b/g/n	a/b/g/n	a/b/g/n	a/b/g/n	b/g/n	b/g/n	b/g/n
Wi-Fi band [GHz]	2.4 and 5	2.4 and 5	2.4 and 5	2.4 and 5	2.4	2.4	2.4
Maximum Wi-Fi channel width [MHz]	40	40	40	40	20	20	20
LTE filter	o	o	o	o	•		
Antenna type (see footnotes)	2 U.FL	2 pin	pcb (pin)	2 U.FL	pin	metal	metal
Thread							
OS support							
Android / Linux drivers	•	•	•	•	•	•	•
RTOS (via NXP i.MX RT MCUs)	•	•	•	•	•	•	•
Interfaces							
High-speed UART [®]	1	1	1	1			
SDIO [version] ^W	v3	v3	v3	v3	v2	v2	v2
PCM/I2S (Bluetooth audio)	1	1	1	1			
USB 2.0					1	1	1
Features							
Bluetooth long range	•	•	•	•			
Bluetooth LE audio							
Micro Access Point [max connects]	8	8	8	8	8	8	8
AES hardware support	•	•	•	•	•	•	•
Wi-Fi direct	•	•	•	•	•	•	•
Wi-Fi 802.11mc							
WPA3	•	•	•	•	•	•	•
Factory-assigned MAC address in OTP	•	•	•	•	•	•	•
Factory calibrated RF in OTP	•	•	•	•	•	•	•
Simultaneous STA/AP roles	•	•	•	•	•	•	•
Secure boot							

B = Bluetooth only
W = Wi-Fi only

pin = pin for external antenna
metal = Metal PIFA antenna

U.FL = U.FL connector(s) for external antenna
pcb = Internal PCB antenna


o = On request

* = EIRP for embedded antennas; conducted for pins and connectors

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Host-based short range radio modules



	Multiradio (Wi-Fi and Bluetooth)			
	JODY-W682	JODY-W683	JODY-W562	JODY-W487
Grade				
Automotive	•	•	•	•
Professional				
Standard				
Physical				
Image				
Size [mm]	13.8 x 19.8 x 2.5			
Operating temperature [°C]	-40 to +105		-40 to +85/+105	-40 to +85/105
Radio				
Chip inside	NXP AW693	NXP AW693	NXP AW611	IFX 89570
Bluetooth qualification version	5.3		5.3	5.3
Bluetooth Low Energy	•	•	•	•
Bluetooth BR/EDR	•	•	•	•
Bluetooth output power [dBm] *	10	10	12	12
Wi-Fi output power [dBm] *	19	19	18	18
Wi-Fi IEEE 802.11 standards	a/b/g/n/ac/ax	a/b/g/n/ac/ax	a/b/g/n/ac/ax	a/b/g/n/ac/ax
Wi-Fi band [GHz]	2.4, 5, and 6	2.4, 5, and 6	2.4 and 5	2.4, 5, and 6
Maximum Wi-Fi channel width [MHz]	80	80	80	80
LTE filter	o	o	o	o
Antenna type (see footnotes)	2p	3p	2p	3p
OS support				
Android / Linux drivers	•	•	•	•
QNX (via third party)	•	•	•	•
Interfaces				
High-speed UART ^B	1	1	1	1
PCIe ^W	1	1		1
SDIO [version] ^W			v3	v3
PCM/I2S (Bluetooth audio)	1	1	1	1
Features				
Secure boot	•	•		
Bluetooth long range	•	•	•	•
Bluetooth LE audio	•	•	•	•
Micro Access Point [max connects]	64	64	16	12
AES hardware support	•	•	•	•
Wi-Fi direct	•	•	•	•
Wi-Fi 802.11mc	•	•	•	•
WPA3	•	•	•	•
Factory-assigned MAC address in OTP	•	•	•	•
Factory calibrated RF in OTP	•	•	•	•
Simultaneous STA/AP roles	•	•	•	•
2x2 MIMO	•	•		•
Dual MAC	•	•		

B = Bluetooth only 2p = 2 antenna pins, one each for Bluetooth and Wi-Fi
W = Wi-Fi only 3p = 3 pins, 2 for Wi-Fi and 1 for Bluetooth antenna

o = On request

* = EIRP for embedded antennas; conducted for pins and connectors

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Host-based short range radio modules



Multiradio (Wi-Fi and Bluetooth)										
	JODY-W354 JODY-W374 JODY-W377			M2- JODY-W377	JODY-W263		M2- JODY-W263	JODY-W163 JODY-W164 JODY-W167		
Grade										
Automotive	•				•			•		
Professional	•				•			•		
Standard				•			•			
Physical										
Image										
Size [mm]				22 x 30 x 4.2	13.8 x 19.8 x 2.5		22 x 30 x 4.2	13.8 x 19.8 x 2.5		
Operating temperature [°C]				-40 to +85	-40 to +105			-40 to +85		
Radio										
Chip inside	NXP AW690	NXP 88Q9098/ NXP 88W9098		NXP 88Q9098	NXP 88W8987		NXP 88W8987	CYW 88359/CYW 89359		
Bluetooth qualification version	5.3			5.3	5.2		5.2	5.0 ^{W/O}		
Bluetooth Low Energy	•			•	•		•	•		
Bluetooth BR/EDR	•			•	•		•	•		
Bluetooth output power [dBm] *	10	10	10	10	10		10	10	10	10
Wi-Fi output power [dBm] *	19	19	19	19	18		18	18	18	18
Wi-Fi IEEE 802.11 standards	a/b/g/n/ac/ax			a/b/g/n/ac/ax	a/b/g/n/ac		a/b/g/n/ac	a/b/g/n/ac		
Wi-Fi band [GHz]	2.4 and 5			2.4 and 5	2.4 and 5		2.4 and 5	2.4 and 5		
Maximum Wi-Fi channel width [MHz]	80			80	80		80	80		
LTE filter	o	o	o		o			o	o	o
Antenna type (see footnotes)	2p	2p	3p	3 U.FL	2p		2 U.FL	2p	2p	3p
OS support										
Android / Linux drivers	•			•	•		•	•		
RTOS (via NXP i.MX RT MCUs)					•		•			
QNX (via third party)	•			•	•		•	•		
Interfaces										
High-speed UART [®]	1	1	1	1	1		1	1	1	1
PCIe ^W	1	1	1	1					1	1
SDIO [version] ^W	v3	v3	v3	v3	v3		v3	v3		
PCM/I2S (Bluetooth audio)	1	1	1	1	1		1	1	1	1
Features										
Bluetooth long range	•			•						
Micro Access Point [max connects]	64	64	64	64	8		8	10	10	10
AES hardware support	•			•	•		•	•		
Wi-Fi direct	•			•	•		•	•		
Wi-Fi 802.11mc	•			•						
WPA3	•			•	•		•	•		
Factory-assigned MAC address in OTP	•			•	•		•	•		
Factory calibrated RF in OTP	•			•	•		•	•		
Simultaneous STA/AP roles	•			•	•		•	•		
2x2 MIMO	•			•				•		
Dual MAC	•			•				•		

B = Bluetooth only
W = Wi-Fi only

2p = 2 antenna pins, one each for Bluetooth and Wi-Fi
3p = 3 pins, 2 for Wi-Fi and 1 for Bluetooth antenna

U.FL = U.FL connector(s) for external antenna
W/O = without optional features

o = On request

* = EIRP for embedded antennas; conducted for pins and connectors