

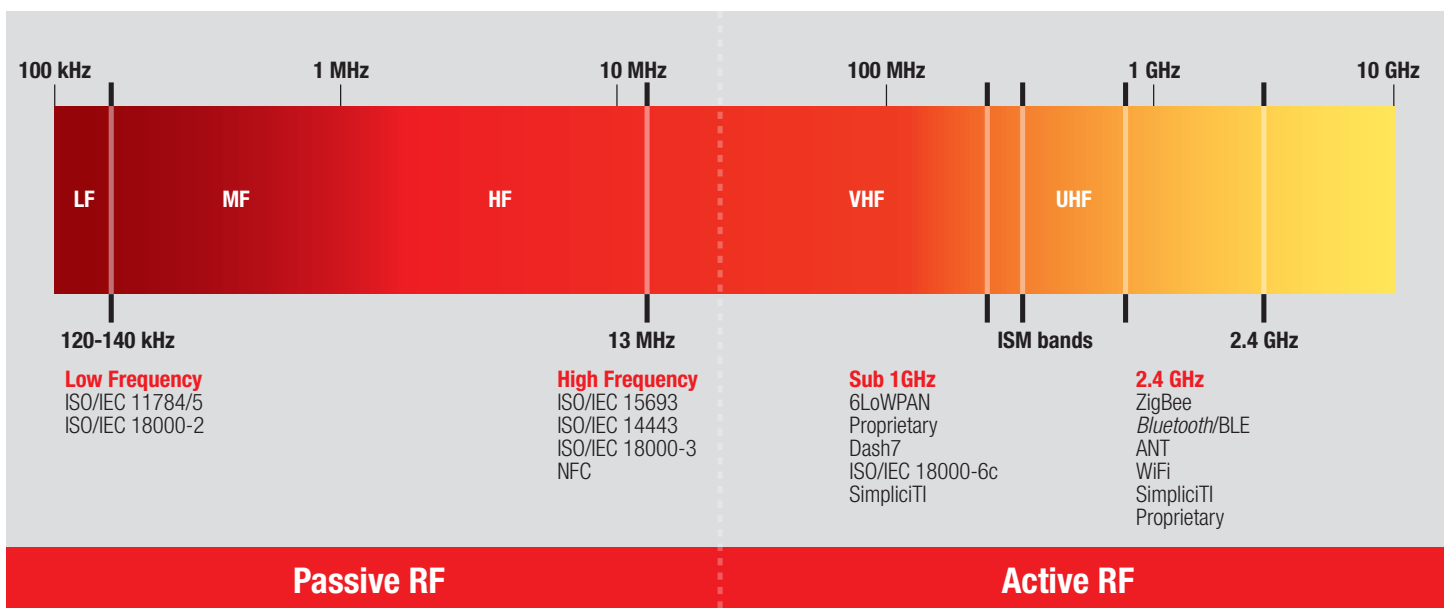
RF Connectivity with TI Microcontrollers



TI's wireless connectivity solutions are designed for the industry's broadest low power and high-performance embedded processing. TI's MSP430™ and ARM® Cortex™-M MCUs are an ideal fit for numerous wireless solutions with their unique combination of ultra-low power consumption and high performance integrated analog. By making RF design easy, performance-rich and power-efficient, TI's MCUs help advance networking applications for personal area networks, mesh and IP networks, proprietary protocols and RFID. TI MCU and RF solutions are perfect for applications that include, but are not limited to, sensor hubs, wireless audio, remote controls, and personal health. They are also ideal for home and building automation applications such as alarm and security systems, automatic meter reading systems, active and passive NFC/RFID systems and other monitoring and control systems.

TI offers a broad range of hardware and software tools for the MSP430 and ARM Cortex-M microcontroller families as well as comprehensive collateral such as reference designs, application notes and user guides. These combined with a vibrant, active community ecosystem make development fast and easy. For more information visit www.ti.com/embeddedrf.

Radio Frequency Spectrum



RF Connectivity with TI Microcontrollers

Active RF

TI is the largest provider of complete Mesh and IP networking solutions in the industry supporting ZigBee, 6LoWPan and WiFi solutions in this space. From system-on-chip solutions to microcontroller plus transceiver chip solutions, TI can help you find the right wireless technology for your Mesh and IP networking solution.

Mesh and IP Networks

Standard	Application	Minimum Microcontroller	RF Stack Memory Requirement (Typical Minimum Requirement)	Transceiver	SoC	Network Processor	EVM/ Development Kits/Ref. Designs	Module	Developer Network	Software/Tools
ZigBee/IEEE802.15.4 (2.4GHz)	ZigBee Pro, ZHA (Home Automation) ZigBee Pro, ZBA ZigBee Bldg Automation ZigBee Pro, ZHC ZigBee Health Care ZigBee Pro, ZSE 1.x (ZigBee Smart Energy)	MSP430F2618	120kB/8kB		CC2530		CC2530DK	PROFLEX	LSR	Z-stack
						CC2530-ZNP	CC2530ZDK	A2530EZ24XX	Anaren	
				CC2520			MSP-EXP430F5438		Murata	
							CC2520DK			
ZigBee/IEEE802.15.4 (2.4GHz)	ZSE Smart Energy 2.0 ZigBee IP	MSP430F5437A	RAM	CC2520			MSP-EXP430F5438	PROFLEX	LSR	Z-stack
DASH7 (sub 1GHz)	Asset tracking	MSP430F2350	16kB/2kB		CC430F6137					
					RF430F9xx					
6LoWPAN (sub 1GHz)	Smart metering, home/building and industrial automation, industrial monitoring and process control, logistics and asset tracking		32kB/4kB	CC1120	CC430F6137		RF Performance Line DK	SIFLEX01	LSR	
				CC1200					Anaren	
6LoWPAN (sub 2.4GHz)	Smart Metering, home/building and industrial automation, industrial monitoring and process control, logistics and asset tracking	MSP430F5437A	35kB/3kB		CC2530			NanoSensor	Sensinode	
				CC2520				A2500R24C	Anaren	
				CC2591				ProFLEX01	LSR	
WiFi/802.11b.g.n (2.4GHz)	Consumer devices, industrial and home automation, point of sale and point of purchase, video conferencing, video camera, medical devices, security and surveillance	AM/DM37x		WL1271			AM/DM37x EVM	WL1271-TiWi	LSR	
		OMAP35x					OMAP35x EVM	WL1271-TiWi	LSR	
		AM18x					AM18x and OMAPL138	WL1271-TiWi	LSR	
WiFi/802.11b.g (2.4GHz)	Home automation, home security/safety, smart metering, healthcare/home fitness	MSP430G2302	2kB/250B	CC3000			CC3000 BoosterPack	CC3000EM	TI	Basic WiFi software for multiple platforms
							Murata SimpleLink Wi-Fi CC3000 FRAM Evaluation Module Kit	CC3000-TYPEVK	Murata	
							LSR SimpleLink Wi-Fi CC3000 FRAM Evaluation Module Kit	CC3000-TYPEVK	LSR	

TI's wireless personal area networking chipset solutions facilitate the seamless operation among home or business devices and systems. Whether your solution involves communication among personal devices or connecting to a higher level network, look to TI for the lowest power consumption solution.

Personal Area Networks

Standard	Application	Minimum Microcontroller	RF Stack Memory Requirement (Typical Minimum Requirement)	Transceiver	SoC	Network Processor	EVM/ Development Kits/Ref. Designs	Module	Developer Network	Software/Tools
<i>Bluetooth</i> Low Energy technology (2.4GHz)	Mobile accessories, sports and fitness sensors, home and medical sensors		100kB/5kB		CC2540	CC2541S	CC2540DK-MINI		BlueRadio	BLE Protocol Stack
					CC2540		CC2540EM-RD		BlueGiga	BLE Demo Application
									LSR	BLE Sensor Tag
									Murata	
<i>Bluetooth + Bluetooth</i> Low Energy (2.4GHz)	Mobile accessories, sports and fitness sensors, home and medical sensors	MSP430F5438 MSP430F5529	128kB/8kB	CC2564			CC2541DK-SENSOR		Panasonic	
							BR-EVAL-LE4.0-D2A Eval Kit	CC2564-BLUEBRIDGE	BlueRadios	Stonestreet One
								LBMA1BGUG2	Murata	Bluetooth and
							PAN1323EMK	CC2560-PAN1326	Panasonic	Dual mode stacks
							TiWi-uB2 EM Board	CC2564-TiWi-ub2	LSR	

RF Connectivity with TI Microcontrollers

Personal Area Networks (continued)

Standard	Application	Minimum Microcontroller	RF Stack Memory Requirement (Typical Minimum Requirement)	Transceiver	SoC	Network Processor	EVM/ Development Kits/Ref. Designs	Module	Developer Network	Software/Tools
Bluetooth Technology (2.4GHz)	Cable replacement, wireless sensors, medical devices, computer peripherals, industrial control, consumer devices	MSP430F5438A	92kB/8kB	CC2560			SN2100 EM Development Kit	CC2560-SN2100	Murata	Stonestreet One Bluetooth and Dual mode stacks
		PAN1323EMK					CC2560-PAN1315	Panasonic		
		EZ430-RF2560					CC2560-PAN1325			
		MSP-EXP430F5438								
ANT (2.4GHz)	Sports and fitness equipment, health and medical equipment, consumer health devices, consumer electronics, wireless sensor networks)	MSP430F5435A	128k /256kB Flash/ 8kB RAM*			CC2570	ANTC7EK1			ANT Protocol Stack
						CC2571				
Zigbee RF4CE (2.4GHz)	Remote controls, set-top boxes, TVs, Blu-ray players, 3D glasses				CC2530	CC2530	CC2533DK-RF4CE-BA			RemoTI
					CC2533	CC2533				
					CC2531	CC2531				
Pure Path Wireless Audio (2.4GHz)					CC8520		CC85XXDK	A8520	Anaren	PurePath Wireless Configurator
					CC8521		CC85XXDK-HEADSET			
					CC8530					
					CC8531					

* Memory requirements for a host processor (currently only supported in a Network Processor)

TI offers a broad portfolio of Sub-1 GHz and 2.4Ghz chipsets, including best in class RF performance. A total system-solution provider, TI offers hardware and software, as well as an extensive selection of development kits, reference designs and application notes and worldwide customer support.

Proprietary RF

Standard	Application	Minimum Microcontroller	RF Stack Memory Requirement (Typical Minimum Requirement)	Transceiver	SoC	Network Processor	EVM/ Development Kits/Ref. Designs	Module	Developer Network	Software/Tools
SimpliciTI (Sub 1GHz)	Home, building and industrial automation, energy harvesting, home control, medical/ patient monitoring, logistics and asset tracking, sensor networks, active RFID	<u>MSP430F4616</u>	8kB/1kB		<u>CC430F5137</u>		<u>CC430F5137RF900</u>			<u>SimpliciTI</u>
					<u>CC430F6137</u>		<u>CC430F6137RF900</u>			
					<u>CC430F6137</u>		<u>eZ430-Chronos Wireless Watch</u>			
					<u>CC1110</u>		<u>CC1110DK-MINI</u>			
					<u>CC1111</u>		<u>CC1111EMK868/915</u>			
				<u>CC110L</u>			<u>Value Line DK 868-915MHz</u>			
SimpliciTI (2.4GHz)	Home building and industrial automation, energy harvesting, home control, medical/ patient monitoring, logistics and asset tracking, sensor networks, active RFID	<u>MSP430F2252</u>	8kB/1kB	<u>CC2500</u>	<u>CC2543</u>		<u>CC2543-CC2544DK</u>			<u>SimpliciTI</u>
					<u>CC2544</u>		<u>CC2543-CC2544DK</u>			
					<u>CC2545</u>		<u>CC2545EMK</u>			
M-Bus (868MHz)	eMetering	<u>MSP430F2272</u>		<u>CC1101</u>				<u>AMB8425-M/ AM8520-M</u>	<u>Amber</u>	
				<u>CC1200</u>		<u>CC430F6137</u>		<u>AM8520</u>	<u>Amber</u>	

RF Connectivity with TI Microcontrollers

Proprietary RF (continued)

Standard	Application	Minimum Microcontroller	RF Stack Memory Requirement (Typical Minimum Requirement)	Transceiver	SoC	Network Processor	EVM/ Development Kits/Ref. Designs	Module	Developer Network	Software/Tools
902-928MHz				CC1101				A1101R09C (Radio Module)	Anaren	
902-928MHz								A1101R09A (Radio Module)	Anaren	
865-868MHz								A1101R08C (Radio Module)	Anaren	
865-868MHz								A1101R08A (Radio Module)	Anaren	
433-434.4MHz								A1101R04C (Radio Module)	Anaren	
433-434.4MHz								A1101R04A (Radio Module)	Anaren	

Passive RFBODY

TI is an industry leader in RFID technology and the world's largest integrated manufacturer of RFID solutions. TI is an active member of many standards bodies, including ISO/IEC, NFC, ETSI and several national standardization bodies working to drive the adoption of global standards for RFID technology.

NFC/RFID

Standard	Application	Minimum Microcontroller	RF Stack Memory Requirement (Typical Minimum Requirement)	Transceiver	SoC	Network Processor	EVM/ Development Kits/Ref. Designs	Module	Developer Network	Software/Tools
ISO/IEC15693 (13.56MHz)	Access control, asset tracking, prepaid eMetering, product authentication	MSP430G2403	8KB/512B	TRF7961						15693 Demo Code
				TRF7962A				TM-001	Jogtek	
								DLP-RFID-1	DLP Design	
ISO/IEC14443A/B (13.56MHz)	Access control, asset tracking, prepaid eMetering, POS, product authentication	MSP430F2330	8KB/1KB	TRF7960A			TRF7960AEVM			14443 Demo Code
				TRF7963A			TRF7960ATB			
							DK-EM2-7960R			DK-EM2-7960R Firmware
ISO/IEC15693/ ISO/IEC 14443A/B (13.56MHz)	Access control, asset tracking, prepaid eMetering, POS, product authentication	MSP430F2350	12KB/1KB	TRF7960A			TRF7960AEVM			15693/14443 Demo Code
							TRF7960ATB			
								TM-009	Jogtek	
NFC (13.56MHz)	Access control, prepaid eMetering, product authentication, mobile payment/ticketing, smart posters, <i>Bluetooth</i> pairing, Wifi configuration	MSP430F2370	21KB/1KB	TRF7970A			TRF7970AEVM			
							TRF7970ATB			
(134.2kHz)	Wireless battery-less sensor interface, data logger, configuration interface, stand alone LF transponder with memory	MSP430G2302	3KB/256B	TMS37157 (Transponder)			eZ430-TMS37157			Demo Code
(134.2kHz)	Reader/Writer for LF transponder and wireless battery-less sensor interface	MSP430G2402	5KB/256B	TMS3705 (Reader)			eZ430-TMS37157			Demo Code

Positioning

Standard	Application	Minimum Microcontroller	RF Stack Memory Requirement (Typical Minimum Requirement)	Transceiver	SoC	Network Processor	EVM/ Development Kits/Ref. Designs	Module	Developer Network	Software/Tools
GPS	Asset tracking, theft protection, health & fitness, industrial automation, agriculture, surveillance, precision timing, femto cells, broadcasting	<u>MSP430F5529</u>		<u>CC4000</u>			<u>CC4000EMK</u>	<u>CC4000-TC6000GN</u>	GNS	Pre-Integrated in EVM
							<u>CC4000EMK</u>	<u>CC4000-TC6000GN</u>	Murata	Pre-Integrated in EVM

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