



ConnectCore 93

System-on-Module

Hardware Reference Manual

Revision history—90002549

Revision	Date	Description
1P	May 2023	Early draft.
2P	May 2023	Initial release.
3P	August 2023	Updated Bluetooth version.
4P	December 2023	Added castellated pad signals to LGA table; modified multimedia features list to remove parallel display; added new diagram showing the location of pin 1; removed LDO2 and LDO3, which no longer exist in the latest version of the PMIC; added BOOT1 note in Bootstrap section; fixed typos.
5P	October 2024	Replaced block diagram; updated Bluetooth version; updated comment for pads F4, F5, F6, F7, F8, G15, E10, E11, E9, A26, G13, G14, F13 and F14; fixed ALT7 name for pad P1; added power group for AN4, E3, AK24 and AK25; marked all MCA-related pins as NC; replaced comments and power groups for pads AN25 and AG18.
A	June 2025	Added certifications; updated reference power diagram; added link to power consumption document; highlighted default pad functionality; modified pad power groups; added pin name to CPU JTAG pads; added comment for pads AJ12 and AL18; fixed typo in pad AG21; extended comments for pads AJ12 and AN25; updated audio interfaces list; added Socket options topic; miscellaneous enhancements.

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- Description of issue
- Steps to reproduce

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About the ConnectCore 93 SOM

The Digi ConnectCore® 93 System-on-Module (SOM) platform is a highly integrated, cost-effective, connected, secure embedded solution, built on the i.MX 93 MPU family. It integrates memory, power management, pre-certified wireless connectivity, and advanced Digi TrustFence device security with a complete, open-source Linux software platform based on the Yocto Project.

Features and functionality

The ConnectCore 93 system-on-module is based on the i.MX 93 processor from NXP. This processor offers a number of interfaces, most of them multiplexed and not available simultaneously. The module has the following features:

- Single/Dual Cortex-A55 MPCore platform:
 - Frequency operating at up to 1.7 GHz.
 - 32 KB L1 instruction cache.
 - 32 KB L1 data cache.
 - 64 KB per-core L2 cache.
 - Media Processing Engine (MPE) with ARM NEON technology supporting the Advanced Single Instruction Multiple Data architecture.
 - Floating Point Unit (FPU) with support of the Arm VFPv4-D16 architecture.
 - Support of 64-bit Arm v8.2-A architecture.
 - 256 KB cluster L3 cache.
 - Parity/ECC protection on L1 cache, L2 cache, and TLB RAMs.
 - Boot ROM (256 KB).
 - On-chip RAM (640 KB).
 - Security:
 - Trusted resource domain controller (TRDC).
 - ARM TrustZone (TZ) architecture, including both Trustzone-A and Trustzone-M.
 - On-chip RAM (OCRAM) secure region protection using OCRAM controller.
 - EdgeLock secure enclave.
 - Battery backed security module (BBSM):
 - Secure non-volatile storage (SNVS).
 - Secure real-time clock (RTC).
- Cortex-M33 core platform:
 - Frequency operating up to 250 MHz.
 - Support FPU, MPU, NVIC, FPB, DWT and ITM.
 - Two-way set-associative 16 KB system cache with parity support.
 - Two-way set-associative 16 KB code cache with parity support.
 - Boot ROM (256 KB).

- Neural processing unit (NPU):
 - NPU targets 8-bit and 16-bit integer RNN.
 - Handles 8-bit weights.
- System debug:
 - Arm CoreSight debug and trace technology.
 - Embedded trace FIFO (ETF) with 4 KB internal storage to provide trace buffering.
 - Unified trace capability for dual core Cortex-A55 and Cortex-M33.
 - Cross Triggering Interface (CTI).
 - 5-pin JTAG.
- Image sensor interface (ISI):
 - Standard pixel formats commonly used in many camera input protocols.
 - Programmable resolutions up to 2K.
 - Image processing for:
 - Supports one source of up to 2K horizontal resolution.
 - Supports pixel rate up to 200 Mpixel/s.
 - Image down scaling via decimation and bi-phase filtering.
 - Color space conversion.
 - Interlaced to progressive conversions.
- Connectivity:
 - x2 USB 2.0 controllers and PHYs interfaces.
 - x2 CAN/CAN-FD.
 - x2 I3C.
 - x2 32-pin FlexIO modules.
 - x3 uSDHC.
 - x2 Ethernet controllers:
 - x1 Gigabit Ethernet controller with support for Energy Efficient Ethernet (EEE), Ethernet AVB and IEEE 1588.
 - x1 Gigabit Ethernet controller with support for TSN in addition to EEE, Ethernet AVB and IEEE 1588.
 - x8 LPSPI.
 - x8 I2C.
 - x8 LPUART.
- Multimedia:
 - LCDIF display controller, which can drive any of two displays:
 - MIPI DSI: up to 1920x1200p60.
 - LVDS Tx: up to 1366x768p60 or 1280x800p60.
 - 2-lane MIPI CSI-2 interface:
 - Compliant with MIPI CSI-2 specification v1.2 and MIPI D-PHY specification v1.2.
 - Support up to 2 Rx data lanes (plus 1 Rx clock lane).

- Support 80 Mbps - 1.5 Gbps per lane data rate in high speed operation.
- Support 10 Mbps data rate in low power operation.
- 4-lane MIPI DSI display with data supplied by the LCDIF:
 - Compliant with MPI DSI specification v1.2 and MIPI D-PHY specification v1.2.
 - Capable of resolutions achievable with a 200 MHz pixel clock and active pixel rate of 140 Mpixel/s with 24-bit RGB.
 - Support 80 Mbps - 1.5 Gbps data rate per lane in high speed operation.
 - Support 10 Mbps data rate in low power operation.
- Audio:
 - x3 SAI interfaces:
 - SAI1 supports 2 lanes.
 - SAI2 supports 4 lanes.
 - SAI3 supports 1 lane.
 - SAI2 and SAI3 support glue-less switching between PCM and stereo DSD operation.
 - x1 SPDIF.
 - 24-bit PDM supports up to 8-microphones (4 lanes).
- Up to 1 GB, 16-bit LPDDR4 memory.
- Up to 8 GB, 8-bit eMMC memory.
- NXP PCA9451 Power Management IC (PMIC):
 - x6 Step down regulators.
 - x5 Linear regulators.
 - x1 Load switch.
- IEEE 802.11 a/b/g/n/ac/ax WLAN interface.
- Bluetooth version 5.4.

Safety instructions

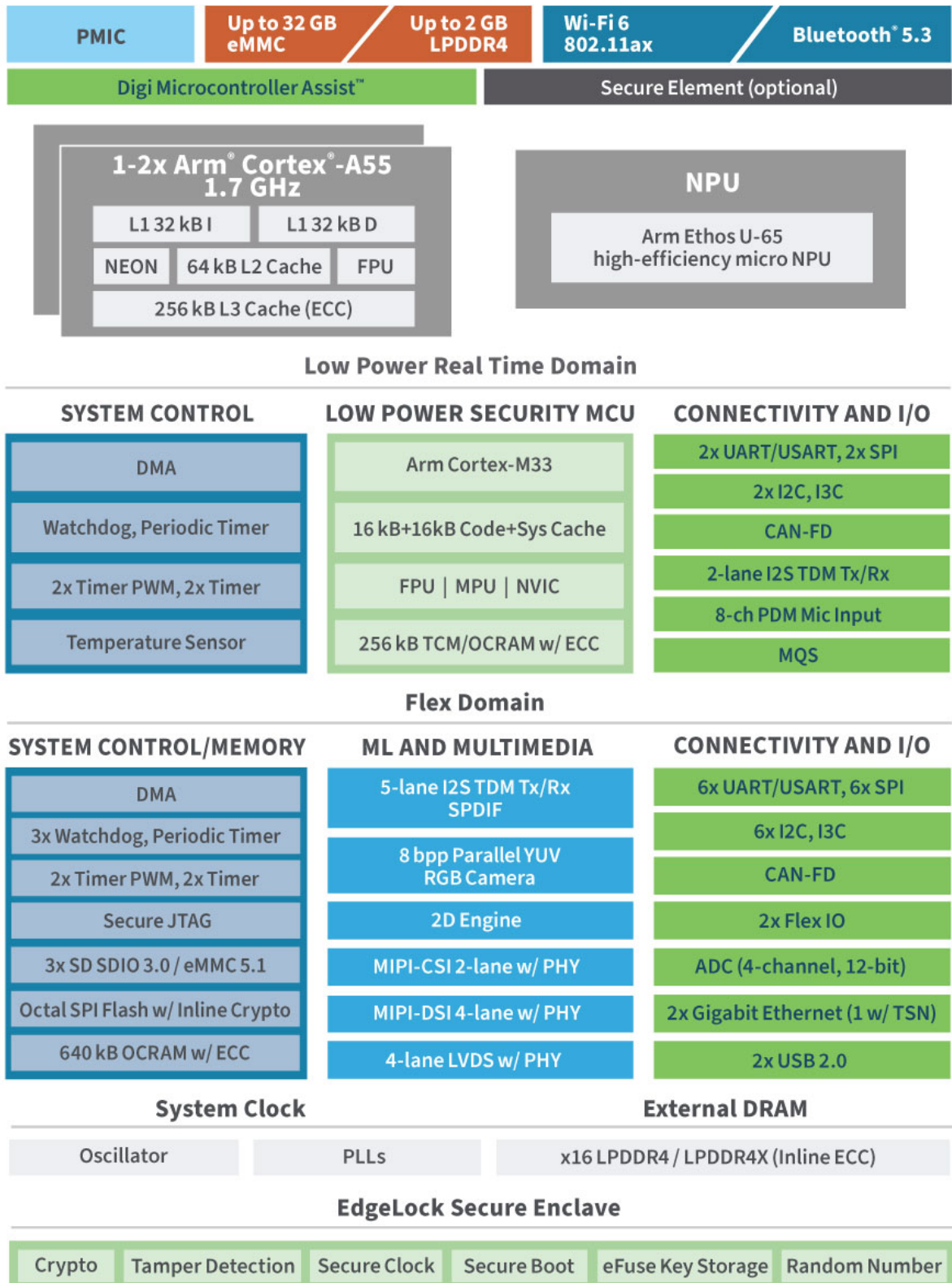
- The ConnectCore 93 SOM cannot be guaranteed operation due to the radio link and so should not be used for interlocks in safety critical devices such as machines or automotive applications.
- The ConnectCore 93 SOM has not been approved for use in (this list is not exhaustive):
 - nuclear applications
 - explosive or flammable atmospheres
- There are no user serviceable components inside the ConnectCore 93 SOM. Do not modify the ConnectCore 93 in any way. Modifications may exclude the SOM from any warranty and can cause the ConnectCore 93 to operate outside of regulatory compliance for a given country, leading to the possible illegal operation of the radio.
- Use industry standard ESD protection when handling the ConnectCore 93 SOM.
- Take care while handling to avoid electrical damage to the PCB and components.
- Do not expose ConnectCore 93 SOM to water or moisture.
- Use this product with the antennas specified in the ConnectCore 93 SOM user guides.

- The end user must be told how to remove power from the ConnectCore 93 SOM or to locate the antennas 20 cm from humans or animals.

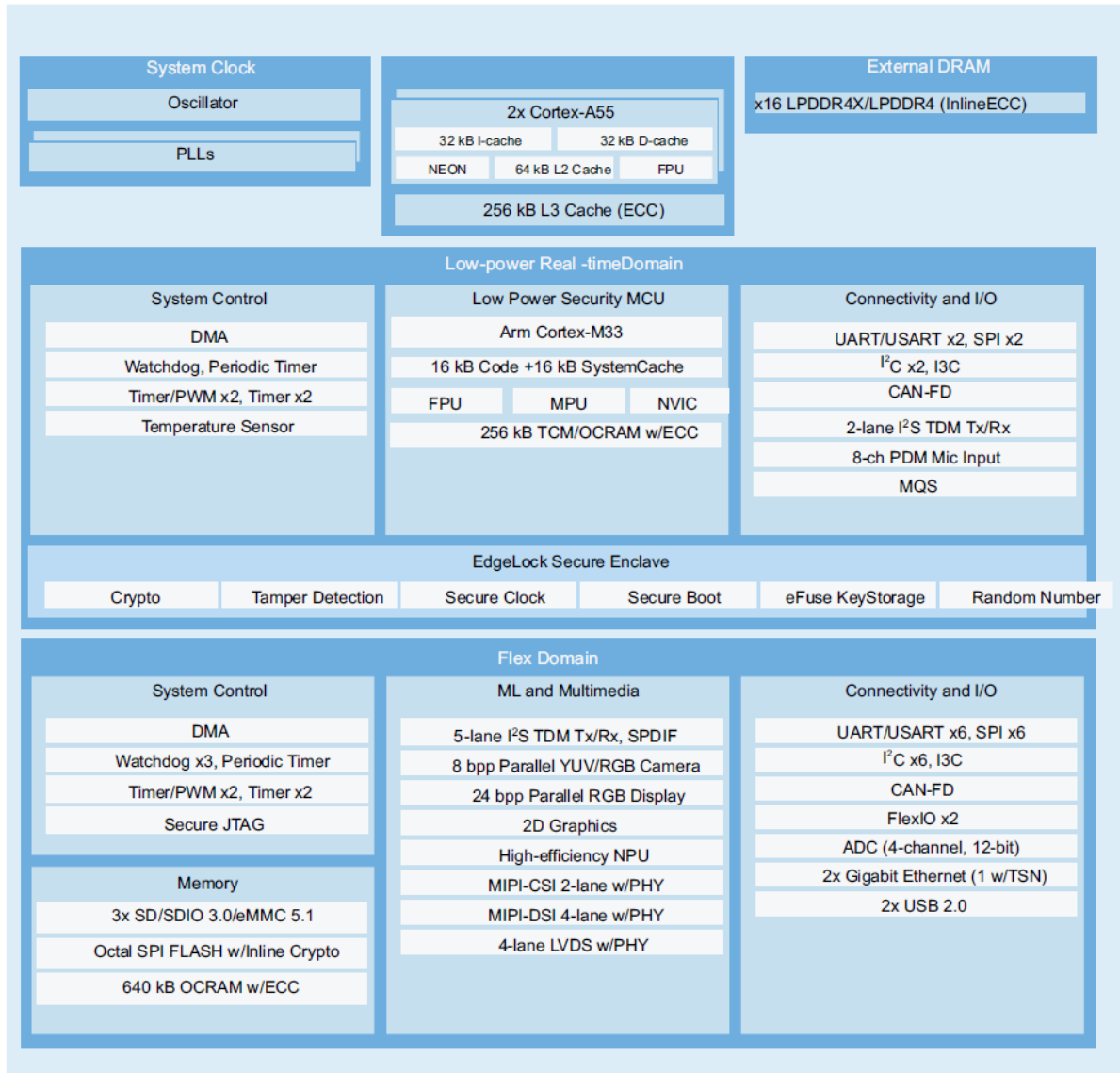
Block diagrams

The figures below show block diagrams of the ConnectCore 93 module and of the NXP i.MX 93 application processor.

ConnectCore 93 module



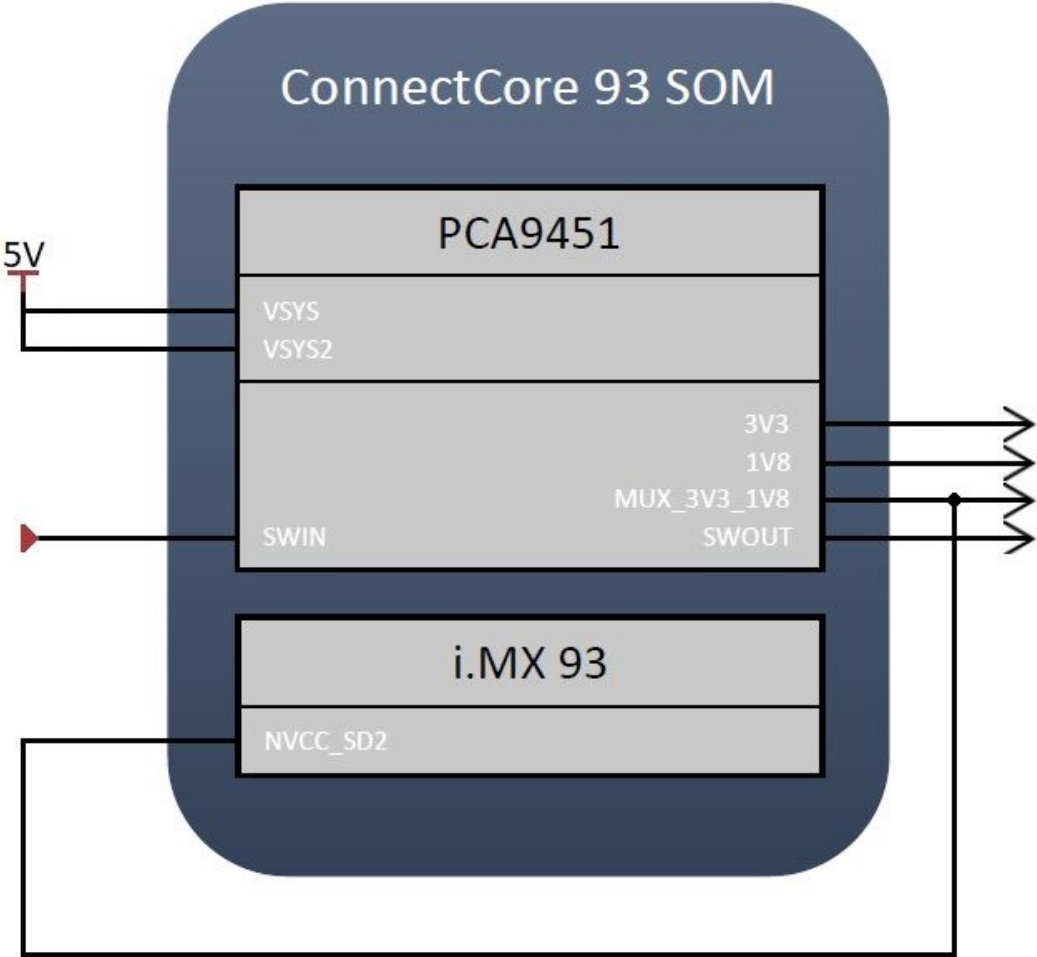
i.MX 93 application processor



Power interfaces

Reference power diagram

The following diagram represents the power architecture of the ConnectCore 93 module in a typical application:



System-on-module power architecture

The ConnectCore 93 requires two primary power supply inputs: VSYS and VSYS2. These supplies are the input power supplies to the on-module NXP PCA9451 power management IC (PMIC), which generates all required supply voltages for the module as well as the external interfaces.

The following table summarizes the PMIC regulators and switches on the ConnectCore 93 SOM:

PMIC regulator	SOM power rail name	Input power supply	Internally used	Externally available
BUCK1	-	VSYS2	YES	NO
BUCK2	-	VSYS2	YES	NO
BUCK3	-	VSYS2	YES	NO
BUCK4	3V3	VSYS	YES	YES
BUCK5	1V8	VSYS2	YES	YES
BUCK6	-	VSYS2	YES	NO
LDO1	-	VSYS2	YES	NO
LDO4	-	VSYS2	YES	NO
LDO5	MUX_3V3_1V8	VSYS2	NO	YES
Load switch	SWOUT	SWIN	NO	YES

In addition to the input power supplies of the PMIC, other power domains of the SOM must also be set externally. This allows power management flexibility so you can adapt the input voltage of the different interfaces. The following table lists the input power rails that must be powered externally to the SOM together with the devices/power domains they power:

Input rail	Internally connected to	Description
NVCC_SD2	NVCC_SD2 pin of the i.MX 93 CPU	IO supply for uSDHC2

Electrical characteristics

Input power rails

The following table lists the electrical specifications of all input power rails for the ConnectCore 93:

Device	SOM power rail		Input voltage (V)		
			Minimum	Typical	Maximum
PMIC	VSYS		3.7	-	6.0 ¹
	VSYS2		2.7	-	6.0 ¹
CPU	NVCC_SD2	1.8V mode	1.62	1.80	1.98
		3.3V mode	3.00	3.30	3.465

¹ Absolute maximum ratings.

Output power rails

The following table lists the electrical specifications of all output power rails for the ConnectCore 93:

SOM power rail	Used internally in the SOM	Output voltage			Accuracy (%)		Continuous output current (mA) ¹	Startup time (µs)	
		Min	Typ	Max	Min	Max		Typ	Max
3V3	YES	0.6	-	3.4	-2	2	3000	250	500
1V8	YES	0.6	-	3.4	-2	2	2000	250	500
MUX_3V3_1V8	NO	1.8	-	3.3	-3	3	150	200	-
SWOUT	NO	2.8	-	5.5	-	-	400	200	500

Note Some of the electrical characteristics may depend on the configuration and operation mode of the different regulators. For a complete description of the electrical characteristics of the different output power rails (PMIC regulators), see the PCA9451 datasheet.

¹ The maximum output current involves both external and internal circuitry. For those regulators that are used internally in the SOM, the current available outside will be lower.

Bootstrap

The ConnectCore 93 module can be configured to boot from different devices and interfaces. The boot mode can be selected in two ways:

- Through the boot mode pins (recommended for development).
- Overridden by fuses (recommended for production).

When using the boot mode pins, the boot mode is determined by the binary value stored in the internal BOOT_MODE register. The boot mode is initialized by sampling the BOOT_MODE[3:0] inputs on the rising edge of POR_B. After these inputs are sampled, the subsequent states do not affect BOOT_MODE internal register value.

The BOOT_MODE[3:0] bits are available in the following signals of the SOM:

Signal	Boot mode
BT_UART1_TX	BOOT0
BT_UART1_RTS	BOOT1
SPI1_CS0	BOOT2
SPI1_SCK	BOOT3

Note BT_UART1_RTS (BOOT1) has an internal pull-up to set the module to boot from the on-module eMMC by default.

The following table lists the different boot modes available on the ConnectCore 93 module:

BOOT core	BOOT_MODE[3:0]	Boot mode
Cortex-A55	0000	Internal fuses
	0001	Serial downloader
	0010	USDHC1 8-bit eMMC 5.1
	0011	USDHC2 47-bit SD3.0
	0100	FlexSPI serial NOR
	0101	FlexSPI serial NAND 2K page
	0110	Infinite loop
	0111	Test mode
Cortex-M33	1000	Internal fuses
	1001	Serial downloader
	1010	USDHC1 8-bit eMMC 5.1
	1011	USDHC2 47-bit SD3.0
	1100	FlexSPI serial NOR
	1101	FlexSPI serial NAND 2K page
	1110	Infinite loop
	1111	Test mode

Wireless interfaces

The ConnectCore 93 System-on-module combines a wireless local area network (WLAN) and Bluetooth dual solution to support IEEE802.11 a/b/g/n/ac/ax WLAN standards and Bluetooth 5.4, enabling seamless integration of WLAN/Bluetooth and Low Energy technology. Digi also offers a non-wireless variant of the ConnectCore 93 module.

The following sections include specifications for the wireless interfaces available on the ConnectCore 93 module.

WLAN IEEE 802.11a/b/g/n/ac/ax

The following sections specify the performance of the WLAN IEEE 802.11a/b/g/n/ac/ax interface on the ConnectCore 93 module.

Modulation and data rates

The following tables list modulation values for the ConnectCore 93 module, which supports the following WLAN standards:

Mode	Modulation & coding	Rate
802.11b	DBPSK	1 Mbps
	DQPSK	2 Mbps
	CCK	5.5 Mbps
	CCK	11 Mbps

Mode	Modulation & coding	Rate
802.11ga	BPSK-1/2	6 Mbps
	BPSK-3/4	9 Mbps
	QPSK-1/2	12 Mbps
	QPSK-3/4	18 Mbps
	16QAM-1/2	24 Mbps
	16QAM-3/4	36 Mbps
	64QAM-2/3	48 Mbps
	64QAM-3/4	54 Mbps
802.11n	BPSK-1/2	MCS0
	QPSK-1/2	MCS1
	QPSK-3/4	MCS2
	16QAM-1/2	MCS3
	16QAM-3/4	MCS4
	64QAM-2/3	MCS5
	64QAM-3/4	MCS6
	64QAM-5/6	MCS7

Mode	Modulation & coding	Rate
802.11ac	BPSK-1/2	MCS0
	QPSK-1/2	MCS1
	QPSK-3/4	MCS2
	16QAM-1/2	MCS3
	16QAM-3/4	MCS4
	64QAM-2/3	MCS5
	64QAM-3/4	MCS6
	64QAM-5/6	MCS7
	256QAM-3/4	MCS8
	256QAM-5/6	MCS9
802.11ax	BPSK-1/2	MCS0
	QPSK-1/2	MCS1
	QPSK-3/4	MCS2
	16QAM-1/2	MCS3
	16QAM-3/4	MCS4
	64QAM-2/3	MCS5
	64QAM-3/4	MCS6
	64QAM-5/6	MCS7
	256QAM-3/4	MCS8
	256QAM-5/6	MCS9
	1024QAM-3/4	MCS10
	1024QAM-5/6	MCS11

Data rate (Mbps) - Non Short Guard Interval (Non-SGI)

Data rate (Mbps)		802.11b		802.11ga		802.11n		802.11ac			802.11ax		
		DBPSK	CCK	BPSK-1/2	64QAM-3/4	BPSK-1/2	64QAM-5/6	BPSK-1/2	64QAM-5/6	256QAM-5/6	BPSK-1/2	64QAM-5/6	1024QAM-5/6
Modulation		1 Mbps	11 Mbps	6 Mbps	54 Mbps	MCS0	MCS7	MCS0	MCS7	MCS9	MCS0	MCS7	MCS11
2.4 GHz	HT20	1	11	6	54	6.5	65	6.5	65		4	81	135
	HT40					13.5	135	13.5	135	180	8	163	271
5 GHz	HT20			6	54	6.5	65	6.5	65		4	81	135
	HT40					13.5	135	13.5	135	180	8	163	271
	HT80							29.3	292.5	390	17	340	600

Data rate (Mbps) - Short Guard Interval (SGI)

Mode		802.11b		802.11ga		802.11n		802.11ac			802.11ax		
		DBPSK	CCK	BPSK-1/2	64QAM-3/4	BPSK-1/2	64QAM-5/6	BPSK-1/2	64QAM-5/6	256QAM-5/6	BPSK-1/2	64QAM-5/6	1024QAM-5/6
Modulation		1 Mbps	11 Mbps	6 Mbps	54 Mbps	MCS0	MCS7	MCS0	MCS7	MCS9	MCS0	MCS7	MCS11
2.4 GHz	HT20	1	11	6	54	7.2	72.2	7.2	72.2		8.6	86	143
	HT40					15	150	15	150	200	17.2	172	287
5 GHz	HT20			6	54	7.2	72.2	7.2	72.2		8.6	86	143
	HT40					15	150	15	150	200	17.2	172	287
	HT80							32.5	325	433.3	36	360	600

RF channels

The ConnectCore 93 module supports the following frequency bands:

RF band	Ch. BW	Ch. spacing	Channel number (Center freq. MHz)
2.4 GHz	20 MHz	5 MHz	1(2412), 2(2417), 3(2422), 4(2427), 5(2432), 6(2437), 7(2442), 8(2447), 9(2452), 10(2457), 11(2462), 12(2467), 13(2472), 14(2484)
	40 MHz	5 MHz	3(2422), 11(2462)
5 GHz	20 MHz	20 MHz	36(5180), 40(5200), 44(5220), 48(5240), 52(5260), 56(5280), 60(5300), 64(5320), 100(5500), 104(5520), 108(5540), 112(5560), 116(5580), 120(5600), 124(5620), 128(5640), 132(5660), 136(5680), 140(5700), 144(5720), 149(5745), 153(5765), 157(5785), 161(5805), 165(5825)
	40 MHz	40 MHz	38(5190), 46(5230), 54(5270), 62(5310), 102(5510), 110(5550), 118(5590), 126(5630), 134(5670), 142(5710), 151(5755), 159(5795)
	80 MHz	80 MHz	42(5210), 58(5290), 106(5530), 122(5610), 138(5690), 155(5775)

Note Dependent upon regulatory bodies.

2.4 GHz

2.4 GHz band channel #	Center frequency (MHz)	EUROPE (ETSI)	NORTH AMERICA (FCC)	JAPAN
1	2412	✓	✓	✓
2	2417	✓	✓	✓
3	2422	✓	✓	✓

2.4 GHz band channel #	Center frequency (MHz)	EUROPE (ETSI)	NORTH AMERICA (FCC)	JAPAN
4	2427	✓	✓	✓
5	2432	✓	✓	✓
6	2437	✓	✓	✓
7	2442	✓	✓	✓
8	2447	✓	✓	✓
9	2452	✓	✓	✓
10	2457	✓	✓	✓
11	2462	✓	✓	✓
12	2467	✓	No	✓
13	2472	✓	No	✓
14	2484	No	No	802.11b only

5 GHz

5 GHz band channel #	Center frequency (MHz)	EUROPE (ETSI)	NORTH AMERICA (FCC)	JAPAN
36	5180	Indoors	✓	✓
40	5200	Indoors	✓	✓
44	5220	Indoors	✓	✓
48	5240	Indoors	✓	✓
52	5260	Indoors / DFS / TPC	DFS	DFS / TPC
56	5280	Indoors / DFS / TPC	DFS	DFS / TPC

5 GHz band channel #	Center frequency (MHz)	EUROPE (ETSI)	NORTH AMERICA (FCC)	JAPAN
60	5300	Indoors / DFS / TPC	DFS	DFS / TPC
64	5320	Indoors / DFS / TPC	DFS	DFS / TPC
100	5500	DFS / TPC	DFS	DFS / TPC
104	5520	DFS / TPC	DFS	DFS / TPC
108	5540	DFS / TPC	DFS	DFS / TPC
112	5560	DFS / TPC	DFS	DFS / TPC
116	5580	DFS / TPC	DFS	DFS / TPC
120	5600	DFS / TPC	DFS	DFS / TPC
124	5620	DFS / TPC	DFS	DFS / TPC
128	5640	DFS / TPC	DFS	DFS / TPC
132	5660	DFS / TPC	DFS	DFS / TPC
136	5680	DFS / TPC	DFS	DFS / TPC
140	5700	DFS / TPC	DFS	DFS / TPC
149	5745	SRD	✓	No Access
153	5765	SRD	✓	No Access
157	5785	SRD	✓	No Access
161	5805	SRD	✓	No Access
165	5825	SRD	✓	No Access

Note

DFS = Dynamic Frequency Selection

TPC = Transmit Power Control

SRD = Short Range Devices 25 mW max power

Transmit power

The following table lists nominal transmit power values for the ConnectCore 93 module based on Murata module specifications.

RF band (GHz)	Bandwidth (MHz)	Condition	Output power (dBm)
2.4	20	802.11b	21
		MCS7	20
		MCS8	19
		MCS11	18
	40	MCS7	20
		MCS9	19
MCS11		18	
5	20	MCS7	19.5
		MCS8	18
		MCS11	15.5
	40	MCS7	19
		MCS9	17
		MCS11	15.5
	80	MCS7	18
		MCS9	16.5
		MCS11	13.5

Note Output power values are subject to change.

Antenna ports

The ConnectCore 93 module has one antenna port on the module via a dedicated U.FL connector. The antenna port supports WLAN and Bluetooth functionality.

Bluetooth

The ConnectCore 93 module supports both Bluetooth and Bluetooth Low Energy protocols:

- Bluetooth 5.4 with backward-compatibility. Bluetooth class 1 and class 2 transmitter operation.
- Integrated WLAN-Bluetooth coexistence.

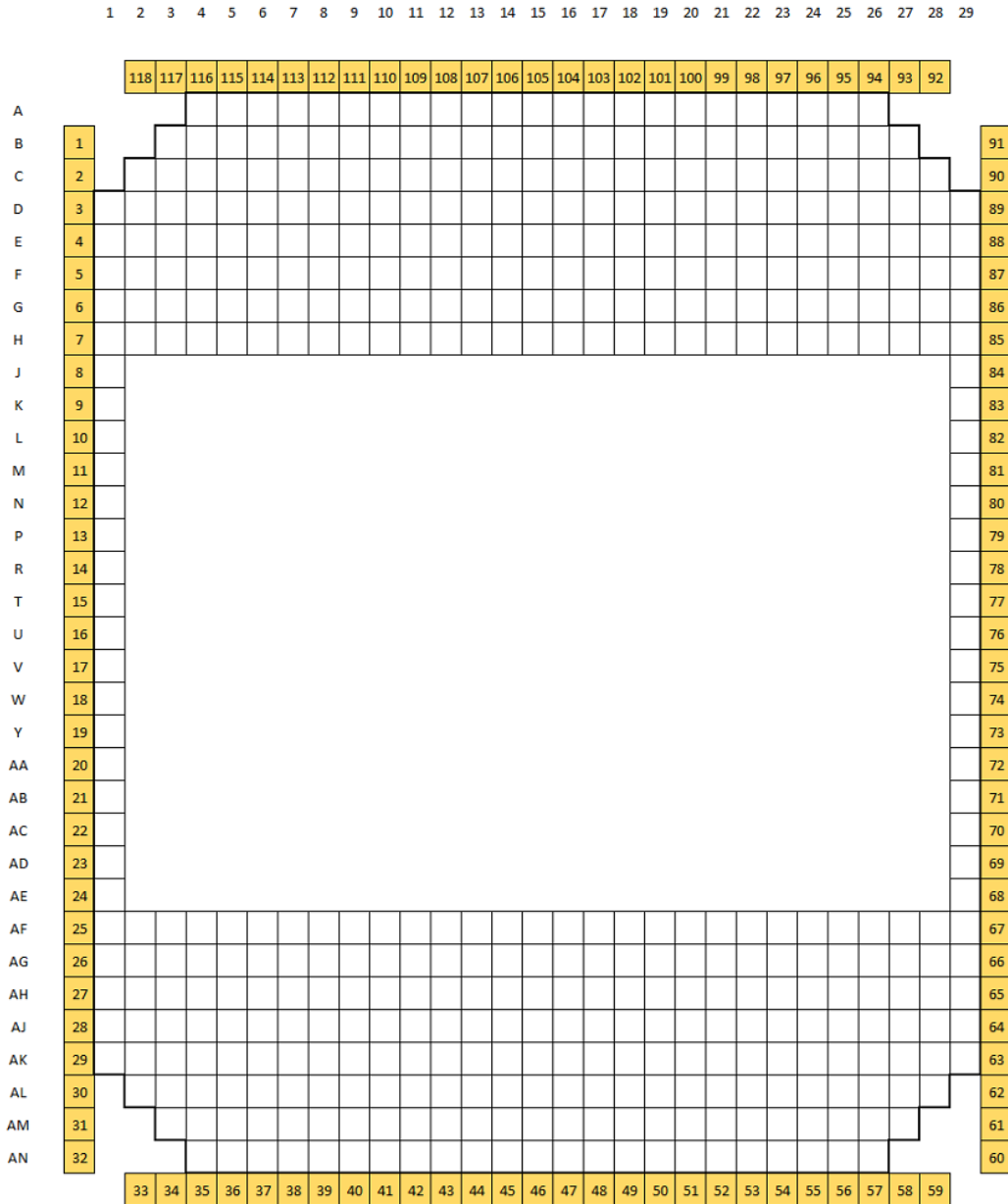
Compatibility within the ConnectCore 9 series

The ConnectCore 93 and the ConnectCore 91 system-on-modules share a common SMTPlus 45x40 form factor. This means that several interfaces are pin-to-pin compatible, enabling you to make a single mother board work for the ConnectCore 9 series of Digi products. Choosing a product with a common form factor enables you to choose a path toward optimized costs, maximum design longevity, and future compatibility without compromising your ability to optimize the board design. You can also leverage common code bases, documentation, and in-house knowledge as your product scales through the product family.

See the [ConnectCore 9 compatibility guide](#) in the ConnectCore documentation portal for more information.

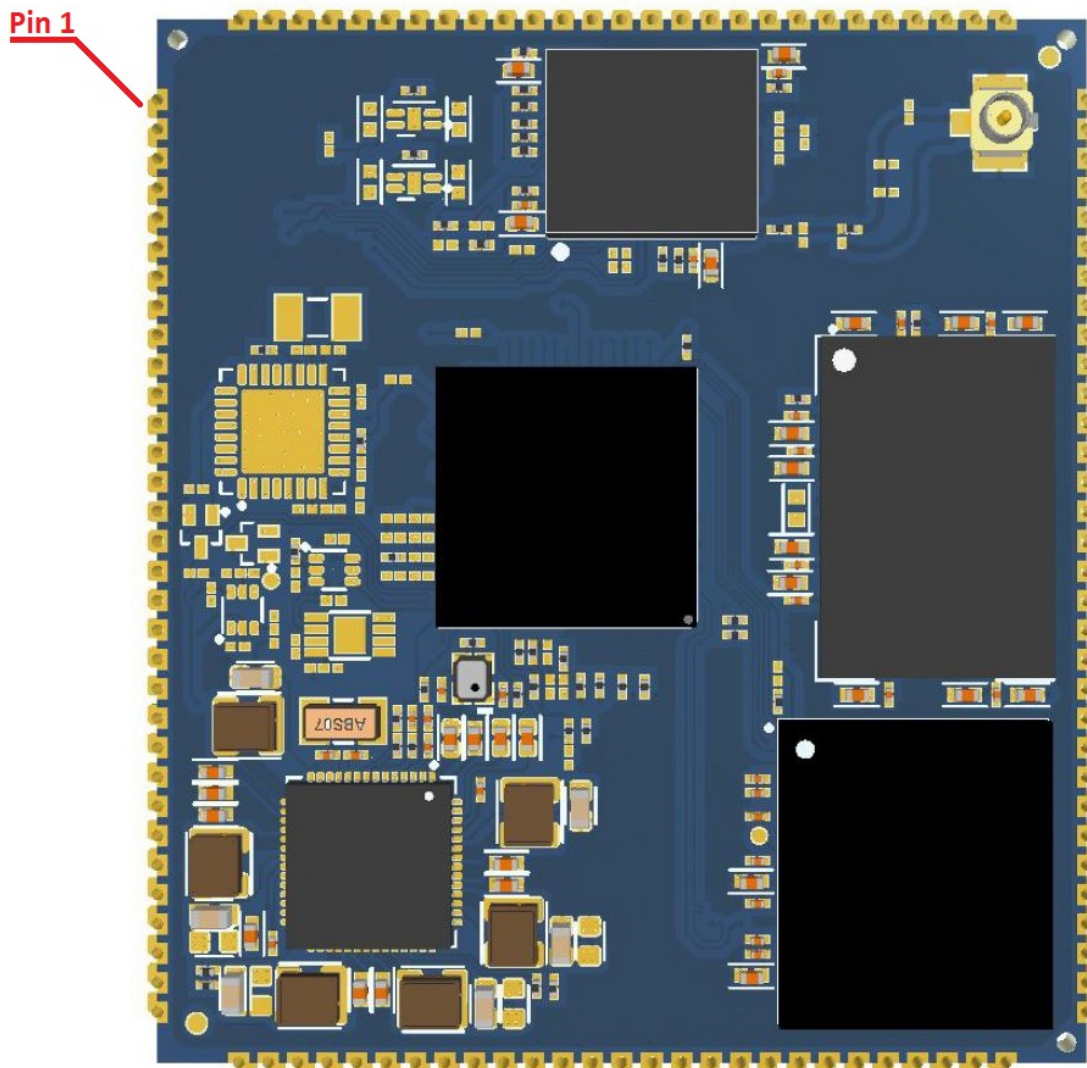
Module pinout

The ConnectCore 93 module has a mixed pad structure. The module provides 474 LGA pins, 118 of them connected to the peripheral castellated pads. The general layout can be found on the following diagram:



White cells: LGA pads
Orange cells: castellated pads

Note The diagram represents the module as seen from the top side with antenna on top-right corner.



External signals and pin multiplexing

The following tables provide the pinout information of the ConnectCore 93 module. For additional information related to the signals listed in the table, refer to the NXP i.MX 93 technical documentation.

Note The Digi ConnectCore Smart IOMUX tool can dramatically simplify pin configuration and resolution. You can enter the list of interfaces required by your project and use the Smart IOMUX graphical interface to mock up configuration options, resulting in full pin assignment and device tree snippets that match your desired functionality. See the [Smart IOMUX User Guide](#) for more information and download instructions.

The microprocessor used on this module, like all CMOS devices, can be driven into a latch-up condition if any I/O pin is driven outside of its associated power rail. Care must be taken to:

- Never drive an I/O pin beyond its positive rail or below ground.
- Never drive an I/O pin from an external power source during the power-on or reset sequences.
- Never hot-swap the module or interrupt its ground connection to external circuitry.



Latch-up is a condition that can cause excessive current draw and result in excessive heating of the microprocessor or its power supplies. This excessive heating can permanently damage the microprocessor and/or its supporting components.

When you use an external supply on the carrier board supporting the ConnectCore 93 module, make sure this supply is NOT back driving i.MX 93 I/Os while their power rails are not enabled. For example, this can happen when an external 3.3V supply is available on the carrier board and this supply powers components driven by i.MX 93 I/Os. In this case, Digi recommends you enable the external power supply after internal 3.3V is enabled, or add the necessary protection circuitry to avoid back voltage (leakage).

Castellated pad signals and multiplexing

Castellated pad number	Associated LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
1	E4	SD2_RESET_B	SD2_RESET_B	ALT0: USDHC2_RESET_B ALT1: LPTMR2_ALT2 ALT4: FLEXIO1_FLEXIO07 ALT5: GPIO3_IO07 ALT6: CCMSRCGPCMIX_SYSTEM_RESET	NVCC_SD2	
2	E3	GPIO2_IO19	GPIO_IO19	ALT0: GPIO2_IO19 ALT1: SAI3_RX_SYNC ALT2: PDM_BIT_STREAM03 ALT3: MEDIAMIX_DISP_DATA15 ALT4: LPSPI5_SIN ALT5: LPSPI4_SIN ALT6: TPM6_CH2 ALT7: SAI3_TX_DATA00	3V3	
3	F3	NC	-	-	-	
4	G2	SD2_CD_B	SD2_CD_B	ALT0: USDHC2_CD_B ALT1: ENET_QOS_1588_EVENT0_IN ALT2: I3C2_SCL ALT4: FLEXIO1_FLEXIO00 ALT5: GPIO3_IO00	NVCC_SD2	
5	F1	SD2_CMD	SD2_CMD	ALT0: USDHC2_CMD ALT1: ENET1_1588_EVENT0_IN ALT2: I3C2_PUR ALT3: I3C2_PUR_B ALT4: FLEXIO1_FLEXIO02 ALT5: GPIO3_IO02 ALT6: CCMSRCGPCMIX_OBSERVE1	NVCC_SD2	

Castellated pad number	Associated LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
6	G1	SD2_DATA0	SD2_DATA0	ALT0: USDHC2_DATA0 ALT1: ENET1_1588_EVENT0_OUT ALT2: CAN2_TX ALT4: FLEXIO1_FLEXIO03 ALT5: GPIO3_IO03 ALT6: CCMSRCGPCMIX_OBSERVE2	NVCC_SD2	
7	H1	SD2_DATA1	SD2_DATA1	ALT0: USDHC2_DATA1 ALT1: ENET1_1588_EVENT1_IN ALT2: CAN2_RX ALT4: FLEXIO1_FLEXIO04 ALT5: GPIO3_IO04 ALT6: CCMSRCGPCMIX_WAIT	NVCC_SD2	
8	J1	SD2_DATA2	SD2_DATA2	ALT0: USDHC2_DATA2 ALT1: ENET1_1588_EVENT1_OUT ALT2: MQS2_RIGHT ALT4: FLEXIO1_FLEXIO05 ALT5: GPIO3_IO05 ALT6: CCMSRCGPCMIX_STOP	NVCC_SD2	
9	K1	SD2_DATA3	SD2_DATA3	ALT0: USDHC2_DATA3 ALT1: LPTMR2_ALT1 ALT2: MQS2_LEFT ALT4: FLEXIO1_FLEXIO06 ALT5: GPIO3_IO06 ALT6: CCMSRCGPCMIX_EARLY_RESET	NVCC_SD2	
10	L1	SD2_CLK	SD2_CLK	ALT0: USDHC2_CLK ALT1: ENET_QOS_1588_EVENT0_OUT ALT2: I3C2_SDA ALT4: FLEXIO1_FLEXIO01 ALT5: GPIO3_IO01	NVCC_SD2	

Castellated pad number	Associated LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
				ALT6: CCMSRCGPCMIX_OBSERVE0		
11	M1	GND				
12	N1	NVCC_SD2				
13	P1	UART7_TX	GPIO_IO08	ALT0: GPIO2_IO08 ALT1: LPSPI3_PCS0 ALT2: MEDIAMIX_CAM_DATA02 ALT3: MEDIAMIX_DISP_DATA04 ALT4: TPM6_CH0 ALT5: LPUART7_TX ALT6: LPI2C7_SDA ALT7: FLEXIO1_FLEXIO08	3V3	
14	R1	UART7_RX	GPIO_IO09	ALT0: GPIO2_IO09 ALT1: LPSPI3_SIN ALT2: MEDIAMIX_CAM_DATA03 ALT3: MEDIAMIX_DISP_DATA05 ALT4: TPM3_EXTCLK ALT5: LPUART7_RX ALT6: LPI2C7_SCL ALT7: FLEXIO1_FLEXIO09	3V3	
15	T1	GND				
16	U1	NC	-	-	-	
17	V1	I2C2_SCL	I2C2_SCL	ALT0: LPI2C2_SCL ALT1: I3C1_PUR ALT2: LPUART2_DCB_B ALT3: TPM2_CH2 ALT4: SAI1_RX_SYNC ALT5: GPIO1_IO02 ALT6: I3C1_PUR_B	3V3	

Castellated pad number	Associated LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
18	W1	I2C2_SDA	I2C2_SDA	ALT0: LPI2C2_SDA ALT2: LPUART2_RIN_B ALT3: TPM2_CH3 ALT4: SAI1_RX_BCLK ALT5: GPIO1_IO03	3V3	
19	Y1	PDM_BIT_STREAM1	PDM_BIT_STREAM1	ALT0: PDM_BIT_STREAM01 ALT1: NMI_GLUE_NMI ALT2: LPSPI2_PCS1 ALT3: TPM2_EXTCLK ALT4: LPTMR1_ALT3 ALT5: GPIO1_IO10 ALT6: CCMSRCGPCMIX_EXT_CLK1	3V3	
20	AA1	GPIO2_IO06	GPIO_IO06	ALT0: GPIO2_IO06 ALT1: TPM5_CH0 ALT2: PDM_BIT_STREAM01 ALT3: MEDIAMIX_DISP_DATA02 ALT4: LPSPI7_SOUT ALT5: LPUART6_CTS_B ALT6: LPI2C7_SDA ALT7: FLEXIO1_FLEXIO06	3V3	
21	AB1	NC	-	-	-	
22	AC1	NC	-	-	-	
23	AD1	NC	-	-	-	
24	AE1	NC	-	-	-	
25	AF1	GPIO4_IO14 (1V8)	ENET2_MDC	ALT0: ENET1_MDC ALT1: LPUART4_DCB_B ALT2: SAI2_RX_SYNC ALT4: FLEXIO2_FLEXIO14 ALT5: GPIO4_IO14	1V8	

Castellated pad number	Associated LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
26	AG1	GPIO4_IO15 (1V8)	ENET2_MDIO	ALT0: ENET1_MDIO ALT1: LPUART4_RIN_B ALT2: SAI2_RX_BCLK ALT4: FLEXIO2_FLEXIO15 ALT5: GPIO4_IO15	1V8	
27	AH1	1V8				
28	AJ1	GND				
29	AK1	3V3				
30	-	GND				
31	-	VSYS2				
32	-	VSYS2				
33	-	VSYS				
34	-	GND				
35	AN4	GPIO2_IO18	GPIO_IO18	ALT0: GPIO2_IO18 ALT1: SAI3_RX_BCLK ALT2: MEDIAMIX_CAM_DATA09 ALT3: MEDIAMIX_DISP_DATA14 ALT4: LPSPI5_PCS0 ALT5: LPSPI4_PCS0 ALT6: TPM5_CH2 ALT7: FLEXIO1_FLEXIO18	3V3	
36	AN5	SD2_VSELECT	SD2_VSELECT	ALT0: USDHC2_VSELECT ALT1: USDHC3_WP ALT2: LPTMR2_ALT3 ALT4: FLEXIO1_FLEXIO19 ALT5: GPIO3_IO19 ALT6: CCMSRCGPCMIX_EXT_CLK1	1V8	

Castellated pad number	Associated LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
37	AN6	MIPI_DSI1_CLK_N	MIPI_DSI1_CLK_N			
38	AN7	MIPI_DSI1_CLK_P	MIPI_DSI1_CLK_P			
39	AN8	GND				
40	AN9	MIPI_DSI1_DATA0_N	MIPI_DSI1_D0_N			
41	AN10	MIPI_DSI1_DATA0_P	MIPI_DSI1_D0_P			
42	AN11	GND				
43	AN12	MIPI_DSI1_DATA1_N	MIPI_DSI1_D1_N			
44	AN13	MIPI_DSI1_DATA1_P	MIPI_DSI1_D1_P			
45	AN14	GND				
46	AN15	MIPI_DSI1_DATA2_N	MIPI_DSI1_D2_N			
47	AN16	MIPI_DSI1_DATA2_P	MIPI_DSI1_D2_P			
48	AN17	GND				
49	AN18	MIPI_DSI1_DATA3_N	MIPI_DSI1_D3_N			
50	AN19	MIPI_DSI1_DATA3_P	MIPI_DSI1_D3_P			
51	AN20	GND				

Castellated pad number	Associated LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
52	AN21	NC	-	-	-	
53	AN22	NC	-	-	-	
54	AN23	NC	-	-	-	
55	AN24	NC	-	-	-	
56	AN25	SYS_RESET			Internal 1.8 V supply	Reset line of the module (active low).
57	AN26	NC	-	-	-	
58	AM27	NC	-	-	-	
59	-	NC	-	-	-	
60	-	GND				
61	AL27	NC	-	-	-	
62	AL28	NC	-	-	-	
63	AK29	NC	-	-	-	
64	AJ29	NC	-	-	-	
65	AH29	NC	-	-	-	
66	AG29	NC	-	-	-	
67	AF29	NC	-	-	-	
68	AE29	NC	-	-	-	
69	AD29	NC	-	-	-	

Castellated pad number	Associated LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
70	AC29	NC	-	-	-	
71	AB29	NC	-	-	-	
72	AA29	NC	-	-	-	
73	Y29	GND				
74	W29	UART6_TX	GPIO_IO04	ALT0: GPIO2_IO04 ALT1: TPM3_CH0 ALT2: PDM_CLK ALT3: MEDIAMIX_DISP_DATA00 ALT4: LPSPI7_PCS0 ALT5: LPUART6_TX ALT6: LPI2C6_SDA ALT7: FLEXIO1_FLEXIO04	3V3	
75	V29	UART6_RX	GPIO_IO05	ALT0: GPIO2_IO05 ALT1: TPM4_CH0 ALT2: PDM_BIT_STREAM00 ALT3: MEDIAMIX_DISP_DATA01 ALT4: LPSPI7_SIN ALT5: LPUART6_RX ALT6: LPI2C6_SCL ALT7: FLEXIO1_FLEXIO05	3V3	
76	U29	CAN1_RX	PDM_BIT_STREAM0	ALT0: PDM_BIT_STREAM00 ALT1: MQS1_RIGHT ALT2: LPSPI1_PCS1 ALT3: TPM1_EXTCLK ALT4: LPTMR1_ALT2 ALT5: GPIO1_IO09 ALT6: CAN1_RX	3V3	
77	T29	CAN1_TX	PDM_CLK	ALT0: PDM_CLK ALT1: MQS1_LEFT	3V3	

Castellated pad number	Associated LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
				ALT4: LPTMR1_ALT1 ALT5: GPIO1_IO08 ALT6: CAN1_TX		
78	R29	CAN2_RX	GPIO_IO27	ALT0: GPIO2_IO27 ALT1: USDHC3_DATA3 ALT2: CAN2_RX ALT3: MEDIAMIX_DISP_DATA23 ALT4: TPM6_CH3 ALT5: JTAG_MUX_TMS ALT6: LPSPI5_PCS1 ALT7: FLEXIO1_FLEXIO27	3V3	
79	P29	CAN2_TX	GPIO_IO25	ALT0: GPIO2_IO25 ALT1: USDHC3_DATA1 ALT2: CAN2_TX ALT3: MEDIAMIX_DISP_DATA21 ALT4: TPM4_CH3 ALT5: JTAG_MUX_TCK ALT6: LPSPI7_PCS1 ALT7: FLEXIO1_FLEXIO25	3V3	
80	N29	UART7_RTS	GPIO_IO11	ALT0: GPIO2_IO11 ALT1: LPSPI3_SCK ALT2: MEDIAMIX_CAM_DATA05 ALT3: MEDIAMIX_DISP_DATA07 ALT4: TPM5_EXTCLK ALT5: LPUART7_RTS_B ALT6: LPI2C8_SCL ALT7: FLEXIO1_FLEXIO11	3V3	
81	M29	UART7_CTS	GPIO_IO10	ALT0: GPIO2_IO10 ALT1: LPSPI3_SOUT ALT2: MEDIAMIX_CAM_DATA04 ALT3: MEDIAMIX_DISP_DATA06	3V3	

Castellated pad number	Associated LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
				ALT4: TPM4_EXTCLK ALT5: LPUART7_CTS_B ALT6: LPI2C8_SDA ALT7: FLEXIO1_FLEXIO10		
82	L29	ADC_IN1 (1V8)	ADC_IN1			
83	K29	ADC_IN0 (1V8)	ADC_IN0			
84	J29	NC	-	-	-	
85	H29	GND				
86	G29	TAMPER0 (1V8)	TAMPER0		Internal 1.8V supply	
87	F29	TAMPER1 (1V8)	TAMPER1		Internal 1.8V supply	
88	E29	I2C4_SDA	GPIO_IO02	ALT0: GPIO2_IO02 ALT1: LPI2C4_SDA ALT2: MEDIAMIX_CAM_VSYNC ALT3: MEDIAMIX_DISP_VSYNC ALT4: LPSP16_SOUT ALT5: LPUART5_CTS_B ALT6: LPI2C6_SDA ALT7: FLEXIO1_FLEXIO02	3V3	
89	F28	I2C4_SCL	GPIO_IO03	ALT0: GPIO2_IO03 ALT1: LPI2C4_SCL ALT2: MEDIAMIX_CAM_HSYNC ALT3: MEDIAMIX_DISP_HSYNC ALT4: LPSP16_SCK ALT5: LPUART5_RTS_B ALT6: LPI2C6_SCL ALT7: FLEXIO1_FLEXIO03	3V3	

Castellated pad number	Associated LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
90	E28	GPIO2_IO22	GPIO_IO22	ALT0: GPIO2_IO22 ALT1: USDHC3_CLK ALT2: SPDIF_IN ALT3: MEDIAMIX_DISP_DATA18 ALT4: TPM5_CH1 ALT5: TPM6_EXTCLK ALT6: LPI2C5_SDA ALT7: FLEXIO1_FLEXIO22	3V3	
91	E27	GPIO2_IO23	GPIO_IO23	ALT0: GPIO2_IO23 ALT1: USDHC3_CMD ALT2: SPDIF_OUT ALT3: MEDIAMIX_DISP_DATA19 ALT4: TPM6_CH1 ALT6: LPI2C5_SCL ALT7: FLEXIO1_FLEXIO23	3V3	
92	C24	GPIO2_IO24	GPIO_IO24	ALT0: GPIO2_IO24 ALT1: USDHC3_DATA0 ALT3: MEDIAMIX_DISP_DATA20 ALT4: TPM3_CH3 ALT5: JTAG_MUX_TDO ALT6: LPSPI6_PCS1 ALT7: FLEXIO1_FLEXIO24	3V3	
93	B24	SAI3_MCLK	GPIO_IO17	ALT0: GPIO2_IO17 ALT1: SAI3_MCLK ALT2: MEDIAMIX_CAM_DATA08 ALT3: MEDIAMIX_DISP_DATA13 ALT4: LPUART3_RTS_B ALT5: LPSPI4_PCS1 ALT6: LPUART4_RTS_B ALT7: FLEXIO1_FLEXIO17	3V3	
94	-	GND				

Castellated pad number	Associated LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
95	-					
96	A24	ENET1_TXC	ENET1_TXC	ALT0: CCM_ENET_QOS_CLOCK_GENERATE_TX_CLK ALT1: ENET_QOS_TX_ER ALT4: FLEXIO2_FLEXIO07 ALT5: GPIO4_IO07	1V8	
97	A23	ENET1_TX_CTL	ENET1_TX_CTL	ALT0: ENET_QOS_RGMII_TX_CTL ALT1: LPUART3_DTR_B ALT4: FLEXIO2_FLEXIO06 ALT5: GPIO4_IO06	1V8	
98	A22	ENET1_TXD0	ENET1_TD0	ALT0: ENET_QOS_RGMII_TD0 ALT1: LPUART3_TX ALT4: FLEXIO2_FLEXIO05 ALT5: GPIO4_IO05	1V8	
99	A21	ENET1_TXD1	ENET1_TD1	ALT0: ENET_QOS_RGMII_TD1 ALT1: LPUART3_RTS_B ALT2: I3C2_PUR ALT3: HSIOMIX_OTG_OC1 ALT4: FLEXIO2_FLEXIO04 ALT5: GPIO4_IO04 ALT6: I3C2_PUR_B	1V8	
100	A20	ENET1_TXD2	ENET1_TD2	ALT0: ENET_QOS_RGMII_TD2 ALT1: CCM_ENET_QOS_CLOCK_GENERATE_REF_CLK ALT2: CAN2_RX ALT3: HSIOMIX_OTG_OC2 ALT4: FLEXIO2_FLEXIO03 ALT5: GPIO4_IO03	1V8	
101	A19	ENET1_TXD3	ENET1_TD3	ALT0: ENET_QOS_RGMII_TD3 ALT2: CAN2_TX	1V8	

Castellated pad number	Associated LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
				ALT3: HSIOMIX_OTG_ID2 ALT4: FLEXIO2_FLEXIO02 ALT5: GPIO4_IO02		
102	A18	ENET1_RXC	ENET1_RXC	ALT0: CCM_ENET_QOS_CLOCK_GENERATE_RX_CLK ALT1: ENET_QOS_RX_ER ALT4: FLEXIO2_FLEXIO09 ALT5: GPIO4_IO09	1V8	
103	A17	ENET1_RX_CTL	ENET1_RX_CTL	ALT0: ENET_QOS_RGMII_RX_CTL ALT1: LPUART3_DSR_B ALT3: HSIOMIX_OTG_PWR2 ALT4: FLEXIO2_FLEXIO08 ALT5: GPIO4_IO08	1V8	
104	A16	ENET1_RXD0	ENET1_RD0	ALT0: ENET_QOS_RGMII_RD0 ALT1: LPUART3_RX ALT4: FLEXIO2_FLEXIO10 ALT5: GPIO4_IO10	1V8	
105	A15	ENET1_RXD1	ENET1_RD1	ALT0: ENET_QOS_RGMII_RD1 ALT1: LPUART3_CTS_B ALT3: LPTMR2_ALT1 ALT4: FLEXIO2_FLEXIO11 ALT5: GPIO4_IO11	1V8	
106	A14	ENET1_RXD2	ENET1_RD2	ALT0: ENET_QOS_RGMII_RD2 ALT3: LPTMR2_ALT2 ALT4: FLEXIO2_FLEXIO12 ALT5: GPIO4_IO12	1V8	
107	A13	ENET1_RXD3	ENET1_RD3	ALT0: ENET_QOS_RGMII_RD3 ALT3: LPTMR2_ALT3 ALT4: FLEXIO2_FLEXIO13 ALT5: GPIO4_IO13	1V8	

Castellated pad number	Associated LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
108	A12	NC	-	-	-	
109	A11	ENET1_MDIO	ENET1_MDIO	ALT0: ENET_QOS_MDIO ALT1: LPUART3_RIN_B ALT2: I3C2_SDA ALT3: HSIOMIX_OTG_PWR1 ALT4: FLEXIO2_FLEXIO01 ALT5: GPIO4_IO01	1V8	
110	A10	ENET1_MDC	ENET1_MDC	ALT0: ENET_QOS_MDC ALT1: LPUART3_DCB_B ALT2: I3C2_SCL ALT3: HSIOMIX_OTG_ID1 ALT4: FLEXIO2_FLEXIO00 ALT5: GPIO4_IO00	1V8	
111	A9	USB_OTG2_P	USB2_D_P			
112	A8	USB_OTG2_N	USB2_D_N			
113	A7	USB_OTG1_P	USB1_D_P			
114	A6	USB_OTG1_N	USB1_D_N			
115	-	GND				
116	B6	USB1_VBUS	USB1_VBUS			
117	D4	GND				
118	C6	USB_OTG1_ID	USB1_ID		3V3	

LGA signals and multiplexing

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
A4	GND				
A5	GND				
A6	USB_OTG1_N	USB1_D_N			
A7	USB_OTG1_P	USB1_D_P			
A8	USB_OTG2_N	USB2_D_N			
A9	USB_OTG2_P	USB2_D_P			
A10	ENET1_MDC	ENET1_MDC	ALT0: ENET_QOS_MDC ALT1: LPUART3_DCB_B ALT2: I3C2_SCL ALT3: HSIOMIX_OTG_ID1 ALT4: FLEXIO2_FLEXIO00 ALT5: GPIO4_IO00	1V8	
A11	ENET1_MDIO	ENET1_MDIO	ALT0: ENET_QOS_MDIO ALT1: LPUART3_RIN_B ALT2: I3C2_SDA ALT3: HSIOMIX_OTG_PWR1 ALT4: FLEXIO2_FLEXIO01 ALT5: GPIO4_IO01	1V8	
A12	NC				
A13	ENET1_RXD3	ENET1_RD3	ALT0: ENET_QOS_RGMII_RD3 ALT3: LPTMR2_ALT3 ALT4: FLEXIO2_FLEXIO13 ALT5: GPIO4_IO13	1V8	

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing <i>(green value represents default functionality)</i>	Power group	Comments
A14	ENET1_RXD2	ENET1_RD2	ALT0: ENET_QOS_RGMII_RD2 ALT3: LPTMR2_ALT2 ALT4: FLEXIO2_FLEXIO12 ALT5: GPIO4_IO12	1V8	
A15	ENET1_RXD1	ENET1_RD1	ALT0: ENET_QOS_RGMII_RD1 ALT1: LPUART3_CTS_B ALT3: LPTMR2_ALT1 ALT4: FLEXIO2_FLEXIO11 ALT5: GPIO4_IO11	1V8	
A16	ENET1_RXD0	ENET1_RD0	ALT0: ENET_QOS_RGMII_RD0 ALT1: LPUART3_RX ALT4: FLEXIO2_FLEXIO10 ALT5: GPIO4_IO10	1V8	
A17	ENET1_RX_CTL	ENET1_RX_CTL	ALT0: ENET_QOS_RGMII_RX_CTL ALT1: LPUART3_DSR_B ALT3: HSIOMIX_OTG_PWR2 ALT4: FLEXIO2_FLEXIO08 ALT5: GPIO4_IO08	1V8	
A18	ENET1_RXC	ENET1_RXC	ALT0: CCM_ENET_QOS_CLOCK_GENERATE_RX_CLK ALT1: ENET_QOS_RX_ER ALT4: FLEXIO2_FLEXIO09 ALT5: GPIO4_IO09	1V8	
A19	ENET1_TXD3	ENET1_TD3	ALT0: ENET_QOS_RGMII_TD3 ALT2: CAN2_TX ALT3: HSIOMIX_OTG_ID2 ALT4: FLEXIO2_FLEXIO02 ALT5: GPIO4_IO02	1V8	
A20	ENET1_TXD2	ENET1_TD2	ALT0: ENET_QOS_RGMII_TD2 ALT1: CCM_ENET_QOS_CLOCK_	1V8	

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
			GENERATE_REF_CLK ALT2: CAN2_RX ALT3: HSIOMIX_OTG_OC2 ALT4: FLEXIO2_FLEXIO03 ALT5: GPIO4_IO03		
A21	ENET1_TXD1	ENET1_TD1	ALT0: ENET_QOS_RGMII_TD1 ALT1: LPUART3_RTS_B ALT2: I3C2_PUR ALT3: HSIOMIX_OTG_OC1 ALT4: FLEXIO2_FLEXIO04 ALT5: GPIO4_IO04 ALT6: I3C2_PUR_B	1V8	
A22	ENET1_TXD0	ENET1_TD0	ALT0: ENET_QOS_RGMII_TD0 ALT1: LPUART3_TX ALT4: FLEXIO2_FLEXIO05 ALT5: GPIO4_IO05	1V8	
A23	ENET1_TX_CTL	ENET1_TX_CTL	ALT0: ENET_QOS_RGMII_TX_CTL ALT1: LPUART3_DTR_B ALT4: FLEXIO2_FLEXIO06 ALT5: GPIO4_IO06	1V8	
A24	ENET1_TXC	ENET1_TXC	ALT0: CCM_ENET_QOS_CLOCK_GENERATE_TX_CLK ALT1: ENET_QOS_TX_ER ALT4: FLEXIO2_FLEXIO07 ALT5: GPIO4_IO07	1V8	
A25	GND				
A26	PCM_MCLK				This line comes directly from the

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
					Wireless chip. Functionality not supported by default.
B3	GND				
B4	GND				
B5	GND				
B6	USB1_VBUS	USB1_VBUS			
B7	NC				
B8	GND				
B9	NC				
B10	NC				
B11	GND				
B12	NC				
B13	NC				
B14	GND				
B15	GND				
B16	NC				
B17	NC				
B18	GND				
B19	ENET2_TX_CTL	ENET2_TX_CTL	ALT0: ENET1_RGMII_TX_CTL ALT1: LPUART4_DTR_B	1V8	

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
			ALT2: SAI2_TX_SYNC ALT4: FLEXIO2_FLEXIO20 ALT5: GPIO4_IO20		
B20	ENET2_TXC	ENET2_TXC	ALT0: ENET1_RGMII_TXC ALT1: ENET1_TX_ER ALT2: SAI2_TX_BCLK ALT4: FLEXIO2_FLEXIO21 ALT5: GPIO4_IO21	1V8	
B21	ENET2_TXD3	ENET2_TD3	ALT0: ENET1_RGMII_TD3 ALT2: SAI2_RX_DATA00 ALT4: FLEXIO2_FLEXIO16 ALT5: GPIO4_IO16	1V8	
B22	ENET2_RXD3	ENET2_RD3	ALT0: ENET1_RGMII_RD3 ALT1: SPDIF_OUT ALT2: SPDIF_IN ALT3: MQS2_LEFT ALT4: FLEXIO2_FLEXIO27 ALT5: GPIO4_IO27	1V8	
B23	NC				
B24	SAI3_MCLK	GPIO_IO17	ALT0: GPIO2_IO17 ALT1: SAI3_MCLK ALT2: MEDIAMIX_CAM_DATA08 ALT3: MEDIAMIX_DISP_DATA13 ALT4: LPUART3_RTS_B ALT5: LPSPI4_PCS1 ALT6: LPUART4_RTS_B ALT7: FLEXIO1_FLEXIO17	3V3	
B25	GND				
B26	GND				

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
B27	GND				
C2	GND				
C3	NC				
C4	GND				
C5	GND				
C6	USB_OTG1_ID	USB1_ID		3V3	
C7	NC				
C8	NC				
C9	NC				
C10	USB_OTG2_ID	USB2_ID			
C11	NC				
C12	GND				
C13	GND				
C14	GND				
C15	GND				
C16	GND				
C17	SPI1_CS0	SAI1_TXFS	ALT0: SAI1_TX_SYNC ALT1: SAI1_TX_DATA01 ALT2: LPSPI1_PCS0 ALT3: LPUART2_DTR_B ALT4: MQS1_LEFT ALT5: GPIO1_IO11	3V3	

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing <i>(green value represents default functionality)</i>	Power group	Comments
C18	SPI1_SIN	SAI1_TXC	ALT0: SAI1_TX_BCLK ALT1: LPUART2_CTS_B ALT2: LPSPI1_SIN ALT3: LPUART1_DSR_B ALT4: CAN1_RX ALT5: GPIO1_IO12	3V3	
C19	SAI3_TXFS	GPIO_IO26	ALT0: GPIO2_IO26 ALT1: USDHC3_DATA2 ALT2: PDM_BIT_STREAM01 ALT3: MEDIAMIX_DISP_DATA22 ALT4: TPM5_CH3 ALT5: JTAG_MUX_TDI ALT6: LPSPI8_PCS1 ALT7: SAI3_TX_SYNC	3V3	
C20	ENET2_RXD2	ENET2_RD2	ALT0: ENET1_RGMII_RD2 ALT1: LPUART4_CTS_B ALT2: SAI2_MCLK ALT3: MQS2_RIGHT ALT4: FLEXIO2_FLEXIO26 ALT5: GPIO4_IO26	1V8	
C21	ENET2_TXD2	ENET2_TD2	ALT0: ENET1_RGMII_TD2 ALT1: ENET1_TX_CLK ALT2: SAI2_RX_DATA01 ALT4: FLEXIO2_FLEXIO17 ALT5: GPIO4_IO17	1V8	
C22	ENET2_TXD0	ENET2_TD0	ALT0: ENET1_RGMII_TD0 ALT1: LPUART4_TX ALT2: SAI2_RX_DATA03 ALT4: FLEXIO2_FLEXIO19 ALT5: GPIO4_IO19	1V8	
C23	ENET2_RX_CTL	ENET2_RX_CTL	ALT0: ENET1_RGMII_RX_CTL	1V8	

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
			ALT1: LPUART4_DSR_B ALT2: SAI2_TX_DATA00 ALT4: FLEXIO2_FLEXIO22 ALT5: GPIO4_IO22		
C24	GPIO2_IO24	GPIO_IO24	ALT0: GPIO2_IO24 ALT1: USDHC3_DATA0 ALT3: MEDIAMIX_DISP_DATA20 ALT4: TPM3_CH3 ALT5: JTAG_MUX_TDO ALT6: LPSPI6_PCS1 ALT7: FLEXIO1_FLEXIO24	3V3	
C25	GND				
C26	GND				
C27	RF_ANT_EXT				Internal antenna pad.
C28	GND				
D1	NC				
D2	GND				
D3	GND				
D4	GND				
D5	WLAN_SD3_DATA3	SD3_DATA3	ALT0: USDHC3_DATA3 ALT1: FLEXSPI1_A_DATA03 ALT4: FLEXIO1_FLEXIO25 ALT5: GPIO3_IO25	1V8	This SDIO interface is connected to the Wireless chip on the wireless

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
					variants of the SOM. This pads must remain unconnected unless when using a non wireless variant of the module.
D6	WLAN_SD3_DATA2	SD3_DATA2	ALT0: USDHC3_DATA2 ALT1: FLEXSPI1_A_DATA02 ALT4: FLEXIO1_FLEXIO24 ALT5: GPIO3_IO24	1V8	
D7	NC				
D8	WLAN_SD3_DATA1	SD3_DATA1	ALT0: USDHC3_DATA1 ALT1: FLEXSPI1_A_DATA01 ALT4: FLEXIO1_FLEXIO23 ALT5: GPIO3_IO23	1V8	This SDIO interface is connected to the Wireless chip on the wireless variants of the SOM.
D9	WLAN_SD3_DATA0	SD3_DATA0	ALT0: USDHC3_DATA0 ALT1: FLEXSPI1_A_DATA00 ALT4: FLEXIO1_FLEXIO22 ALT5: GPIO3_IO22	1V8	This pads must remain unconnected unless when using a non wireless variant of the module.
D10	NC				
D11	WLAN_SD3_CMD	SD3_CMD	ALT0: USDHC3_CMD ALT1: FLEXSPI1_A_SS0_B	1V8	This SDIO

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
			ALT4: FLEXIO1_FLEXIO21 ALT5: GPIO3_IO21		interface is connected to the Wireless chip on the wireless variants of the SOM.
D12	WLAN_SD3_CLK	SD3_CLK	ALT0: USDHC3_CLK ALT1: FLEXSPI1_A_SCLK ALT4: FLEXIO1_FLEXIO20 ALT5: GPIO3_IO20	1V8	This pads must remain unconnected unless when using a non wireless variant of the module.
D13	NC				
D14	NC				
D15	NC				
D16	GND				
D17	SPI8_SCK	GPIO_IO15	ALT0: GPIO2_IO15 ALT1: LPUART3_RX ALT2: MEDIAMIX_CAM_DATA07 ALT3: MEDIAMIX_DISP_DATA11 ALT4: LPSPI8_SCK ALT5: LPUART8_RTS_B ALT6: LPUART4_RX ALT7: FLEXIO1_FLEXIO15	3V3	
D18	SPI1_SOUT	SAI1_RXD0	ALT0: SAI1_RX_DATA00 ALT1: SAI1_MCLK	3V3	

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
			ALT2: LPSPI1_SOUT ALT3: LPUART2_DSR_B ALT4: MQS1_RIGHT ALT5: GPIO1_IO14		
D19	NC				
D20	ENET2_TXD1	ENET2_TD1	ALT0: ENET1_RGMII_TD1 ALT1: LPUART4_RTS_B ALT2: SAI2_RX_DATA02 ALT4: FLEXIO2_FLEXIO18 ALT5: GPIO4_IO18	1V8	
D21	ENET2_RXD0	ENET2_RD0	ALT0: ENET1_RGMII_RD0 ALT1: LPUART4_RX ALT2: SAI2_TX_DATA02 ALT4: FLEXIO2_FLEXIO24 ALT5: GPIO4_IO24	1V8	
D22	ENET2_RXC	ENET2_RXC	ALT0: ENET1_RGMII_RXC ALT1: ENET1_RX_ER ALT2: SAI2_TX_DATA01 ALT4: FLEXIO2_FLEXIO23 ALT5: GPIO4_IO23	1V8	
D23	ENET2_RXD1	ENET2_RD1	ALT0: ENET1_RGMII_RD1 ALT1: SPDIF_IN ALT2: SAI2_TX_DATA03 ALT4: FLEXIO2_FLEXIO25 ALT5: GPIO4_IO25	1V8	
D24	GND				
D25	GPIO3_IO27 (1V8)	CCM_CLKO2	ALT0: CCMSRCGPCMIX_CLKO2 ALT4: FLEXIO1_FLEXIO27 ALT5: GPIO3_IO27	1V8	

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
D26	GND				
D27	GND				
D28	GND				
D29	GND				
E1	GND				
E2	GND				
E3	GPIO2_IO19	GPIO_IO19	ALT0: GPIO2_IO19 ALT1: SAI3_RX_SYNC ALT2: PDM_BIT_STREAM03 ALT3: MEDIAMIX_DISP_DATA15 ALT4: LPSP15_SIN ALT5: LPSP14_SIN ALT6: TPM6_CH2 ALT7: SAI3_TX_DATA00	3V3	
E4	SD2_RESET_B	SD2_RESET_B	ALT0: USDHC2_RESET_B ALT1: LPTMR2_ALT2 ALT4: FLEXIO1_FLEXIO07 ALT5: GPIO3_IO07 ALT6: CCMSRCGPCMIX_SYSTEM_RESET	NVCC_SD2	
E5	1V8				
E6	GND				
E7	USB2_VBUS	USB2_VBUS			
E8	GND				

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
E9	IW612_JTAG_TDI				This line comes directly from the Wireless chip. Functionality not supported by default.
E10	IW612_JTAG_TMS				
E11	IW612_JTAG_TCK				
E12	BT_UART1_RXD	UART1_RXD	ALT0: LPUART1_RX ALT1: S400_UART_RX ALT2: LPSPI2_SIN ALT3: TPM1_CH0 ALT5: GPIO1_IO04	3V3	Internal UART line used by the Bluetooth. This signal is externally available only in non-wireless variants.
E13	BT_UART1_TXD	UART1_TXD	ALT0: LPUART1_TX ALT1: S400_UART_TX ALT2: LPSPI2_PCS0 ALT3: TPM1_CH1 ALT5: GPIO1_IO05	3V3	
E14	SWIN				
E15	GND				
E16	NC				
E17	SPI1_SCK	SAI1_TXD0	ALT0: SAI1_TX_DATA00 ALT1: LPUART2_RTS_B ALT2: LPSPI1_SCK ALT3: LPUART1_DTR_B ALT4: CAN1_TX ALT5: GPIO1_IO13	3V3	
E18	SPI8_SOUT	GPIO_IO14	ALT0: GPIO2_IO14 ALT1: LPUART3_TX ALT2: MEDIAMIX_CAM_DATA06	3V3	

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
			ALT3: MEDIAMIX_DISP_DATA10 ALT4: LPSPI8_SOUT ALT5: LPUART8_CTS_B ALT6: LPUART4_TX ALT7: FLEXIO1_FLEXIO14		
E19	SPI8_CS0	GPIO_IO12	ALT0: GPIO2_IO12 ALT1: TPM3_CH2 ALT2: PDM_BIT_STREAM02 ALT3: MEDIAMIX_DISP_DATA08 ALT4: LPSPI8_PCS0 ALT5: LPUART8_TX ALT6: LPI2C8_SDA ALT7: SAI3_RX_SYNC	3V3	
E20	SAI3_TXD	GPIO_IO21	ALT0: GPIO2_IO21 ALT1: SAI3_TX_DATA00 ALT2: PDM_CLK ALT3: MEDIAMIX_DISP_DATA17 ALT4: LPSPI5_SCK ALT5: LPSPI4_SCK ALT6: TPM4_CH1 ALT7: SAI3_RX_BCLK	3V3	
E21	SAI3_RXD	GPIO_IO20	ALT0: GPIO2_IO20 ALT1: SAI3_RX_DATA00 ALT2: PDM_BIT_STREAM00 ALT3: MEDIAMIX_DISP_DATA16 ALT4: LPSPI5_SOUT ALT5: LPSPI4_SOUT ALT6: TPM3_CH1 ALT7: FLEXIO1_FLEXIO20	3V3	
E22	SPI8_SIN	GPIO_IO13	ALT0: GPIO2_IO13 ALT1: TPM4_CH2	3V3	

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
			ALT2: PDM_BIT_STREAM03 ALT3: MEDIAMIX_DISP_DATA09 ALT4: LPSPI8_SIN ALT5: LPUART8_RX ALT6: LPI2C8_SCL ALT7: FLEXIO1_FLEXIO13		
E23	SAI3_TXC	GPIO_IO16	ALT0: GPIO2_IO16 ALT1: SAI3_TX_BCLK ALT2: PDM_BIT_STREAM02 ALT3: MEDIAMIX_DISP_DATA12 ALT4: LPUART3_CTS_B ALT5: LPSPI4_PCS2 ALT6: LPUART4_CTS_B ALT7: FLEXIO1_FLEXIO16	3V3	
E24	NC				
E25	NC				
E26	NC				
E27	GPIO2_IO23	GPIO_IO23	ALT0: GPIO2_IO23 ALT1: USDHC3_CMD ALT2: SPDIF_OUT ALT3: MEDIAMIX_DISP_DATA19 ALT4: TPM6_CH1 ALT6: LPI2C5_SCL ALT7: FLEXIO1_FLEXIO23	3V3	
E28	GPIO2_IO22	GPIO_IO22	ALT0: GPIO2_IO22 ALT1: USDHC3_CLK ALT2: SPDIF_IN ALT3: MEDIAMIX_DISP_DATA18 ALT4: TPM5_CH1 ALT5: TPM6_EXTCLK	3V3	

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
			ALT6: LPI2C5_SDA ALT7: FLEXIO1_FLEXIO22		
E29	I2C4_SDA	GPIO_IO02	ALT0: GPIO2_IO02 ALT1: LPI2C4_SDA ALT2: MEDIAMIX_CAM_VSYNC ALT3: MEDIAMIX_DISP_VSYNC ALT4: LPSPI6_SOUT ALT5: LPUART5_CTS_B ALT6: LPI2C6_SDA ALT7: FLEXIO1_FLEXIO02	3V3	
F1	SD2_CMD	SD2_CMD	ALT0: USDHC2_CMD ALT1: ENET1_1588_EVENT0_IN ALT2: I3C2_PUR ALT3: I3C2_PUR_B ALT4: FLEXIO1_FLEXIO02 ALT5: GPIO3_IO02 ALT6: CCMSRCGPCMIX_OBSERVE1	NVCC_ SD2	
F2	SW_EN				
F3	NC				
F4	15.4_SPI_FRM				This line comes directly from the Wireless chip. Functionality not supported by default.
F5	15.4_SPI_INT				
F6	15.4_SPI_RXD				
F7	15.4_SPI_TXD				
F8	15.4_SPI_CLK				
F9	NC				
F10	NC				

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
F11	BT_UART1_RTS	UART2_TXD	ALT0: LPUART2_TX ALT1: LPUART1_RTS_B ALT2: LPSPI2_SCK ALT3: TPM1_CH3 ALT5: GPIO1_IO07	3V3	Internal UART line used by the Bluetooth. This signal is externally available only in non-wireless variants.
F12	BT_UART1_CTS	UART2_RXD	ALT0: LPUART2_RX ALT1: LPUART1_CTS_B ALT2: LPSPI2_SOUT ALT3: TPM1_CH2 ALT4: SAI1_MCLK ALT5: GPIO1_IO06	3V3	
F13	PCM_OUT				This line comes directly from the Wireless chip. Functionality not supported by default.
F14	PCM_SYNC				
F15	GND				
F16	GND				
F17	3V3_RF				
F18	3V3_RF				
F19	NC				
F20	MUX_3V3_1V8				
F21	GND				
F22	GND				

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
F23	NC				
F24	WL_DEV_WAKE				
F25	NC				
F26	NC			3V3	
F27	NC			3V3	
F28	I2C4_SCL	GPIO_IO03	ALT0: GPIO2_IO03 ALT1: LPI2C4_SCL ALT2: MEDIAMIX_CAM_HSYNC ALT3: MEDIAMIX_DISP_HSYNC ALT4: LPSPI6_SCK ALT5: LPUART5_RTS_B ALT6: LPI2C6_SCL ALT7: FLEXIO1_FLEXIO03	3V3	
F29	TAMPER1 (1V8)	TAMPER1		Internal 1.8 V supply	
G1	SD2_DATA0	SD2_DATA0	ALT0: USDHC2_DATA0 ALT1: ENET1_1588_EVENT0_OUT ALT2: CAN2_TX ALT4: FLEXIO1_FLEXIO03 ALT5: GPIO3_IO03 ALT6: CCMSRCGPCMIX_OBSERVE2	NVCC_SD2	
G2	SD2_CD_B	SD2_CD_B	ALT0: USDHC2_CD_B ALT1: ENET_QOS_1588_EVENT0_IN ALT2: I3C2_SCL ALT4: FLEXIO1_FLEXIO00 ALT5: GPIO3_IO00	NVCC_SD2	

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
G3	NC				
G4	NC				
G5	GND				
G6	NC				
G7	NC				
G8	GND				
G9	NC				
G10	NC				
G11	GND				
G12	BT_DEV_WAKE				
G13	PCM_CLK				This line comes directly from the Wireless chip. Functionality not supported by default.
G14	PCM_IN				
G15	IW612_JTAG_TDO				
G16	GND				
G17	BT_HOST_WAKE				
G18	WL_HOST_WAKE				
G19	GND				
G20	NC				

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
G21	NC				
G22	GND				
G23	NC				
G24	NC				
G25	GND				
G26	GND				
G27	GND				
G28	GND				
G29	TAMPER0 (1V8)	TAMPER0		Internal 1.8 V supply	
H1	SD2_DATA1	SD2_DATA1	ALT0: USDHC2_DATA1 ALT1: ENET1_1588_EVENT1_IN ALT2: CAN2_RX ALT4: FLEXIO1_FLEXIO04 ALT5: GPIO3_IO04 ALT6: CCMSRCGPCMIX_WAIT	NVCC_SD2	
H2	GND				
H3	GND				
H4	GND				
H5	GND				
H6	GND				
H7	GND				

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
H8	GND				
H9	GND				
H10	GND				
H11	GND				
H12	GND				
H13	GND				
H14	GND				
H15	GND				
H16	GND				
H17	GND				
H18	GND				
H19	GND				
H20	GND				
H21	GND				
H22	GND				
H23	GND				
H24	GND				
H25	GND				
H26	GND				
H27	GND				

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
H28	GND				
H29	GND				
J1	SD2_DATA2	SD2_DATA2	ALT0: USDHC2_DATA2 ALT1: ENET1_1588_EVENT1_OUT ALT2: MQS2_RIGHT ALT4: FLEXIO1_FLEXIO05 ALT5: GPIO3_IO05 ALT6: CCMSRCGPCMIX_STOP	NVCC_ SD2	
J29	NC				
K1	SD2_DATA3	SD2_DATA3	ALT0: USDHC2_DATA3 ALT1: LPTMR2_ALT1 ALT2: MQS2_LEFT ALT4: FLEXIO1_FLEXIO06 ALT5: GPIO3_IO06 ALT6: CCMSRCGPCMIX_EARLY_RESET	NVCC_ SD2	
K29	ADC_IN0 (1V8)	ADC_IN0			
L1	SD2_CLK	SD2_CLK	ALT0: USDHC2_CLK ALT1: ENET_QOS_1588_EVENT0_OUT ALT2: I3C2_SDA ALT4: FLEXIO1_FLEXIO01 ALT5: GPIO3_IO01 ALT6: CCMSRCGPCMIX_OBSERVE0	NVCC_ SD2	
L29	ADC_IN1 (1V8)	ADC_IN1			
M1	GND				
M29	UART7_CTS	GPIO_IO10	ALT0: GPIO2_IO10 ALT1: LPSPI3_SOUT	3V3	

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
			ALT2: MEDIAMIX_CAM_DATA04 ALT3: MEDIAMIX_DISP_DATA06 ALT4: TPM4_EXTCLK ALT5: LPUART7_CTS_B ALT6: LPI2C8_SDA ALT7: FLEXIO1_FLEXIO10		
N1	NVCC_SD2				
N29	UART7_RTS	GPIO_IO11	ALT0: GPIO2_IO11 ALT1: LPSPI3_SCK ALT2: MEDIAMIX_CAM_DATA05 ALT3: MEDIAMIX_DISP_DATA07 ALT4: TPM5_EXTCLK ALT5: LPUART7_RTS_B ALT6: LPI2C8_SCL ALT7: FLEXIO1_FLEXIO11	3V3	
P1	UART7_TX	GPIO_IO08	ALT0: GPIO2_IO08 ALT1: LPSPI3_PCS0 ALT2: MEDIAMIX_CAM_DATA02 ALT3: MEDIAMIX_DISP_DATA04 ALT4: TPM6_CH0 ALT5: LPUART7_TX ALT6: LPI2C7_SDA ALT7: FLEXIO1_FLEXIO08	3V3	
P29	CAN2_TX	GPIO_IO25	ALT0: GPIO2_IO25 ALT1: USDHC3_DATA1 ALT2: CAN2_TX ALT3: MEDIAMIX_DISP_DATA21 ALT4: TPM4_CH3 ALT5: JTAG_MUX_TCK ALT6: LPSPI7_PCS1 ALT7: FLEXIO1_FLEXIO25	3V3	

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
R1	UART7_RX	GPIO_IO09	ALT0: GPIO2_IO09 ALT1: LPSPI3_SIN ALT2: MEDIAMIX_CAM_DATA03 ALT3: MEDIAMIX_DISP_DATA05 ALT4: TPM3_EXTCLK ALT5: LPUART7_RX ALT6: LPI2C7_SCL ALT7: FLEXIO1_FLEXIO09	3V3	
R29	CAN2_RX	GPIO_IO27	ALT0: GPIO2_IO27 ALT1: USDHC3_DATA3 ALT2: CAN2_RX ALT3: MEDIAMIX_DISP_DATA23 ALT4: TPM6_CH3 ALT5: JTAG_MUX_TMS ALT6: LPSPI5_PCS1 ALT7: FLEXIO1_FLEXIO27	3V3	
T1	GND				
T29	CAN1_TX	PDM_CLK	ALT0: PDM_CLK ALT1: MQS1_LEFT ALT4: LPTMR1_ALT1 ALT5: GPIO1_IO08 ALT6: CAN1_TX	3V3	
U1	NC				
U29	CAN1_RX	PDM_BIT_STREAM0	ALT0: PDM_BIT_STREAM00 ALT1: MQS1_RIGHT ALT2: LPSPI1_PCS1 ALT3: TPM1_EXTCLK ALT4: LPTMR1_ALT2 ALT5: GPIO1_IO09 ALT6: CAN1_RX	3V3	

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing <i>(green value represents default functionality)</i>	Power group	Comments
V1	I2C2_SCL	I2C2_SCL	ALT0: LPI2C2_SCL ALT1: I3C1_PUR ALT2: LPUART2_DCB_B ALT3: TPM2_CH2 ALT4: SAI1_RX_SYNC ALT5: GPIO1_IO02 ALT6: I3C1_PUR_B	3V3	
V29	UART6_RX	GPIO_IO05	ALT0: GPIO2_IO05 ALT1: TPM4_CH0 ALT2: PDM_BIT_STREAM00 ALT3: MEDIAMIX_DISP_DATA01 ALT4: LPSPI7_SIN ALT5: LPUART6_RX ALT6: LPI2C6_SCL ALT7: FLEXIO1_FLEXIO05	3V3	
W1	I2C2_SDA	I2C2_SDA	ALT0: LPI2C2_SDA ALT2: LPUART2_RIN_B ALT3: TPM2_CH3 ALT4: SAI1_RX_BCLK ALT5: GPIO1_IO03	3V3	
W29	UART6_TX	GPIO_IO04	ALT0: GPIO2_IO04 ALT1: TPM3_CH0 ALT2: PDM_CLK ALT3: MEDIAMIX_DISP_DATA00 ALT4: LPSPI7_PCS0 ALT5: LPUART6_TX ALT6: LPI2C6_SDA ALT7: FLEXIO1_FLEXIO04	3V3	
Y1	PDM_BIT_STREAM1	PDM_BIT_STREAM1	ALT0: PDM_BIT_STREAM01 ALT1: NMI_GLUE_NMI ALT2: LPSPI2_PCS1	3V3	

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing <i>(green value represents default functionality)</i>	Power group	Comments
			ALT3: TPM2_EXTCLK ALT4: LPTMR1_ALT3 ALT5: GPIO1_IO10 ALT6: CCMSR_CGPMIX_EXT_CLK1		
Y29	GND				
AA1	GPIO2_IO06	GPIO_IO06	ALT0: GPIO2_IO06 ALT1: TPM5_CH0 ALT2: PDM_BIT_STREAM01 ALT3: MEDIAMIX_DISP_DATA02 ALT4: LPSPI7_SOUT ALT5: LPUART6_CTS_B ALT6: LPI2C7_SDA ALT7: FLEXIO1_FLEXIO06	3V3	
AA29	NC				
AB1	NC				
AB29	NC				
AC1	NC				
AC29	NC				
AD1	NC				
AD29	NC				
AE1	NC				
AE29	NC				
AF1	GPIO4_IO14 (1V8)	ENET2_MDC	ALT0: ENET1_MDC ALT1: LPUART4_DCB_B ALT2: SAI2_RX_SYNC ALT4: FLEXIO2_FLEXIO14	1V8	

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
			ALT5: GPIO4_IO14		
AF2	GND				
AF3	GND				
AF4	GND				
AF5	GND				
AF6	GND				
AF7	GND				
AF8	GND				
AF9	GND				
AF10	GND				
AF11	GND				
AF12	GND				
AF13	GND				
AF14	GND				
AF15	GND				
AF16	GND				
AF17	GND				
AF18	GND				
AF19	GND				
AF20	GND				

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
AF21	GND				
AF22	GND				
AF23	GND				
AF24	GND				
AF25	GND				
AF26	GND				
AF27	GND				
AF28	GND				
AF29	NC	-	-	-	
AG1	GPIO4_IO15 (1V8)	ENET2_MDIO	ALT0: ENET1_MDIO ALT1: LPUART4_RIN_B ALT2: SAI2_RX_BCLK ALT4: FLEXIO2_FLEXIO15 ALT5: GPIO4_IO15	1V8	
AG2	GND				
AG3	GND				
AG4	GND				
AG5	GND				
AG6	GND				
AG7	GND				
AG8	NC				

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
AG9	NC				
AG10	NC				
AG11	NC				
AG12	NC				
AG13	NC				
AG14	NC				
AG15	NC				
AG16	GND				
AG17	SWOUT				
AG18	ON_OFF	ONOFF		Internal 1.8 V supply	ON/OFF signal from the CPU (active low).
AG19	NC				
AG20	JTAG_TCK	DAP_TCLK_SWCLK		1V8	
AG21	JTAG_TDO	DAP_TMS_SWDIO		1V8	
AG22	NC				
AG23	GND				
AG24	NC				
AG25	GPIO4_IO28 (1V8)	CCM_CLKO3	ALT0: CCMSRCGPCMIX_CLKO3 ALT4: FLEXIO2_FLEXIO28 ALT5: GPIO4_IO28	1V8	

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
AG26	ADC_IN3 (1V8)	ADC_IN3			
AG27	ADC_IN2 (1V8)	ADC_IN2			
AG28	GPIO4_IO29 (1V8)	CCM_CLKO4	ALT0: CCMSRCGPCMIX_CLKO4 ALT4: FLEXIO2_FLEXIO29 ALT5: GPIO4_IO29	1V8	
AG29	NC	-	-	-	
AH1	1V8				
AH2	1V8				
AH3	1V8				
AH4	GND				
AH5	GND				
AH6	RTC_RESET_B				
AH7	NC				
AH8	GND				
AH9	NC				
AH10	POR_B	POR_B			
AH11	NC				
AH12	WDOG_B				
AH13	SD_VSELECT				
AH14	GND				

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
AH15	LVDS_D2_P	LVDS_D2_P			
AH16	LVDS_D2_N	LVDS_D2_N			
AH17	GND				
AH18	NC				
AH19	GND				
AH20	NC				
AH21	GND				
AH22	NC				
AH23	NC				
AH24	NC				
AH25	NC				
AH26	NC				
AH27	JTAG_TDI	DAP_TDI		1V8	
AH28	JTAG_TMS	DAP_TDO_ TRACESWO		1V8	
AH29	NC				
AJ1	GND				
AJ2	VSYS2				
AJ3	VSYS2				
AJ4	VSYS2				

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
AJ5	GND				
AJ6	GND				
AJ7	GND				
AJ8	NC				
AJ9	GND				
AJ10	NC				
AJ11	PMIC_STANDBY				
AJ12	PWR_ON				Output signal. Do not drive this line externally. This pad indicates the state of the PMIC (high level ON, low level OFF).
AJ13	NC				
AJ14	GND				
AJ15	LVDS_D0_N	LVDS_D0_N			
AJ16	LVDS_D0_P	LVDS_D0_P			
AJ17	GND				
AJ18	LVDS_CLK_P	LVDS_CLK_P			

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
AJ19	LVDS_CLK_N	LVDS_CLK_N			
AJ20	GND				
AJ21	NC				
AJ22	NC				
AJ23	NC				
AJ24	NC				
AJ25	NC				
AJ26	GND				
AJ27	NC				
AJ28	NC				
AJ29	NC				
AK1	3V3				
AK2	VSYS2				
AK3	VSYS2				
AK4	VSYS2				
AK5	GND				
AK6	GND				
AK7	GND				
AK8	GND				
AK9	GND				

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
AK10	GND				
AK11	GND				
AK12	GND				
AK13	GND				
AK14	GND				
AK15	LVDS_D1_N	LVDS_D1_N			
AK16	LVDS_D1_P	LVDS_D1_P			
AK17	GND				
AK18	LVDS_D3_P	LVDS_D3_P			
AK19	LVDS_D3_N	LVDS_D3_N			
AK20	GND				
AK21	NC				
AK22	NC				
AK23	GND				
AK24	I2C3_SDA	GPIO_IO00	ALT0: GPIO2_IO00 ALT1: LPI2C3_SDA ALT2: MEDIAMIX_CAM_CLK ALT3: MEDIAMIX_DISP_CLK ALT4: LPSPI6_PCS0 ALT5: LPUART5_TX ALT6: LPI2C5_SDA ALT7: FLEXIO1_FLEXIO00	3V3	
AK25	I2C3_SCL	GPIO_IO01	ALT0: GPIO2_IO01	3V3	

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
			ALT1: LPI2C3_SCL ALT2: MEDIAMIX_CAM_DATA00 ALT3: MEDIAMIX_DISP_DE ALT4: LPSPI6_SIN ALT5: LPUART5_RX ALT6: LPI2C5_SCL ALT7: FLEXIO1_FLEXIO01		
AK26	NC				
AK27	NC				
AK28	NC				
AK29	NC				
AL2	3V3				
AL3	3V3				
AL4	GND				
AL5	GND				
AL6	VSYS				
AL7	VSYS				
AL8	VSYS				
AL9	GND				
AL10	GND				
AL11	GND				
AL12	MIPI_CSI1_DATA1_P	MIPI_CSI1_D1_P			

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
AL13	MIPI_CSI1_DATA1_N	MIPI_CSI1_D1_N			
AL14	GND				
AL15	MIPI_CSI1_DATA0_P	MIPI_CSI1_D0_P			
AL16	MIPI_CSI1_DATA0_N	MIPI_CSI1_D0_N			
AL17	GND				
AL18	GPIO3_IO26 (1V8)	CCM_CLKO1	ALT0: CCMSRCGPCMIX_CLKO1 ALT4: FLEXIO1_FLEXIO26 ALT5: GPIO3_IO26	1V8	
AL19	RESERVED				
AL20	RESERVED				
AL21	NC	-	-	-	
AL22	NC	-	-	-	
AL23	NC	-	-	-	
AL24	NC	-	-	-	
AL25	NC	-	-	-	
AL26	NC	-	-	-	
AL27	NC	-	-	-	
AL28	NC				
AM3	3V3				
AM4	3V3				

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
AM5	GND				
AM6	GND				
AM7	NC				
AM8	NC				
AM9	NC				
AM10	CLKIN1				
AM11	CLKIN2				
AM12	GND				
AM13	MIPI_CSI1_CLK_P	MIPI_CSI1_CLK_P			
AM14	MIPI_CSI1_CLK_N	MIPI_CSI1_CLK_N			
AM15	GND				
AM16	NC				
AM17	NC				
AM18	GND				
AM19	RESERVED				
AM20	GND				
AM21	NC	-	-	-	
AM22	RESERVED				
AM23	NC	-	-	-	
AM24	NC	-	-	-	

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
AM25	NC	-	-	-	
AM26	NC	-	-	-	
AM27	NC	-	-	-	
AN4	GPIO2_IO18	GPIO_IO18	ALT0: GPIO2_IO18 ALT1: SAI3_RX_BCLK ALT2: MEDIAMIX_CAM_DATA09 ALT3: MEDIAMIX_DISP_DATA14 ALT4: LPSPI5_PCS0 ALT5: LPSPI4_PCS0 ALT6: TPM5_CH2 ALT7: FLEXIO1_FLEXIO18	3V3	
AN5	SD2_VSELECT	SD2_VSELECT	ALT0: USDHC2_VSELECT ALT1: USDHC3_WP ALT2: LPTMR2_ALT3 ALT4: FLEXIO1_FLEXIO19 ALT5: GPIO3_IO19 ALT6: CCMSRCGPCMIX_EXT_CLK1	1V8	
AN6	MIPI_DSI1_CLK_N	MIPI_DSI1_CLK_N			
AN7	MIPI_DSI1_CLK_P	MIPI_DSI1_CLK_P			
AN8	GND				
AN9	MIPI_DSI1_DATA0_N	MIPI_DSI1_D0_N			
AN10	MIPI_DSI1_DATA0_P	MIPI_DSI1_D0_P			
AN11	GND				
AN12	MIPI_DSI1_DATA1_N	MIPI_DSI1_D1_N			
AN13	MIPI_DSI1_DATA1_P	MIPI_DSI1_D1_P			

LGA pad name	ConnectCore 93 signal name	i.MX 93 pin name	Multiplexing (green value represents default functionality)	Power group	Comments
AN14	GND				
AN15	MIPI_DSI1_DATA2_N	MIPI_DSI1_D2_N			
AN16	MIPI_DSI1_DATA2_P	MIPI_DSI1_D2_P			
AN17	GND				
AN18	MIPI_DSI1_DATA3_N	MIPI_DSI1_D3_N			
AN19	MIPI_DSI1_DATA3_P	MIPI_DSI1_D3_P			
AN20	GND				
AN21	NC	-	-	-	
AN22	NC	-	-	-	
AN23	NC	-	-	-	
AN24	NC	-	-	-	
AN25	SYS_RESET			Internal 1.8 V supply	Reset line of the module (active low).
AN26	NC	-	-	-	

Module specifications

The following sections describe the specifications for the ConnectCore 93 SOM.

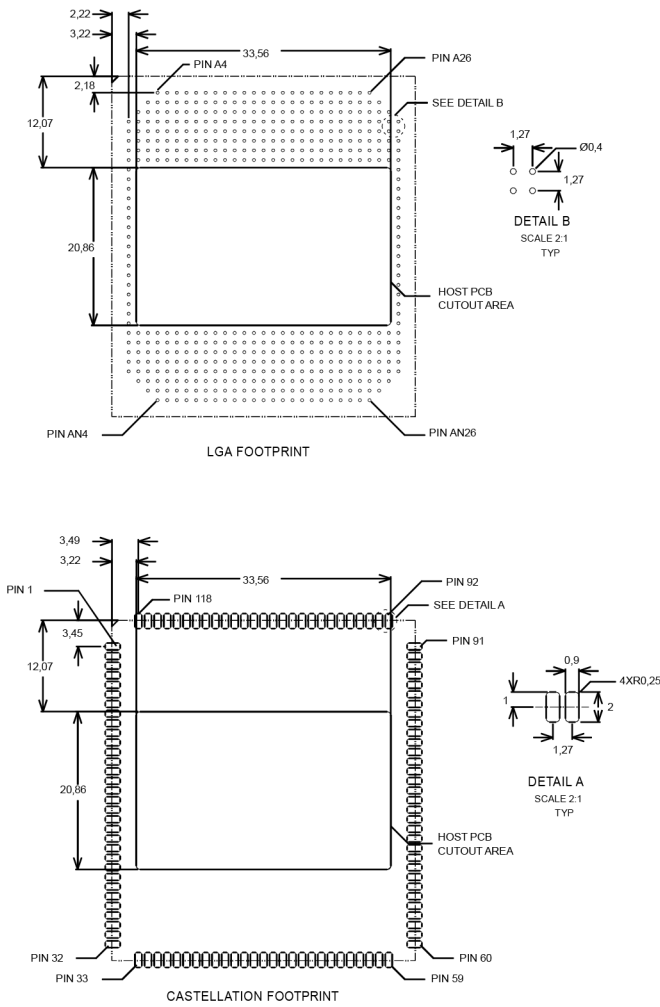
Power consumption	85
Mechanical specifications	85

Power consumption

For information on the power consumption of the ConnectCore 93, refer to the [ConnectCore 93 Performance and Power Benchmarking Report](#).

Mechanical specifications

Host PCB footprint and cutout



Label

The MAC address and serial number of the SOM are encoded in the data matrix on the SOM label.

Weight

The weight of the ConnectCore 93 module is 9.5 g.

Environmental specifications

Operating temperature: -40 to 85 °C.



CAUTION! Your final product may require additional thermal management such as passive (heatsink/spreader) or active (airflow) cooling to achieve the maximum operating temperature without exceeding the processor junction temp limit.

Socket options

For testing, prototyping, and other primarily development-related purposes, Digi International and E-tec Interconnect AG have developed sockets allowing the easy insertion and removal of modules in a carrier board design.

All drawings, user instructions, schematics and PCB footprints are posted on the ConnectCore 93 technical support website.

Note The ConnectCore 93 Development Board (Digi P/N CC-WMX93-KIT) has been designed to support a LPF474-129M-32ACEW55L socket, and can be used as a reference design.

All sockets are sold and built by [E-tec Interconnect AG](#). The table below provides an overview of the available part numbers.

Socket model	E-tec part number
ConnectCore 93 Castellated	LPQ118-1290-32AAEW55L rev1
ConnectCore 93 LGA	LPF474-129M-32ACEW55L rev1

Note Please direct all socket-related purchase inquiries to E-tec Interconnect AG (info@e-tec.com).

Regulatory information and certifications

Note The ConnectCore 93 SOM complies with Part 15 of the United States FCC rules and regulations.

United States FCC	88
Europe and UK	93
Canada (IC)	96
Japan	97

United States FCC

The ConnectCore 93 SOM complies with Part 15 of the FCC rules and regulations. Compliance with the labeling requirements, FCC notices and antenna usage guidelines is required. To fulfill FCC Certification, the OEM must comply with the following regulations:

The system integrator must ensure that the text on top side of the module is placed on the outside of the final product.

The ConnectCore 93 SOM may only be used with approved antennas. (See [FCC-approved antennas](#).)

Labeling requirements



WARNING! The Original Equipment Manufacturer (OEM) must ensure that FCC labeling requirements are met. This includes a clearly visible label on the outside of the final product enclosure that displays the contents shown below. Required FCC Label for OEM products containing the ConnectCore 93 module.

Contains FCC ID: MCQ-CC93

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Maximum power and frequency specifications (FCC)

RF band	Peak antenna gain	Technology	Channel bandwidth	Channel number (Center frequency, MHz)
2.4 GHz	2.5 dBi	BT + EDR Bluetooth LE	1	79 non-overlapping channels: 0 (2400) to 78 (2480)
			2	40 non-overlapping channels: 0 (2402) to 39 (2480)
		WLAN	20	1(2412), 2(2417), 3(2422), 4(2427), 5(2432), 6(2437), 7(2442), 8(2447), 9 (2452), 10 (2457), 11(2462)
			40	3(2422), 4(2427), 5(2432), 6(2437), 7(2442), 8(2447), 9(2452)
5 GHz	4.6 dBi	WLAN	20	36(5180), 40(5200), 44(5220), 48(5240), 52 (5260), 56(5280), 60(5300), 64 (5320), 100 (5500), 104(5520), 108(5540), 112(5560), 116(5580), 120(5600), 124(5620), 128 (5640), 132(5660), 136(5680), 140(5700), 149 (5745), 153(5765), 157(5785), 161 (5805), 165(5825)
			40	38(5190), 46(5230), 54(5270), 62(5310), 102

RF band	Peak antenna gain	Technology	Channel bandwidth	Channel number (Center frequency, MHz)
				(5510), 110(5550), 118(5590), 126(5630), 134(5670), 151(5755), 159(5795)
			80	42(5210), 58(5290), 106(5530), 122(5610), 155(5775)

FCC notices

IMPORTANT: The ConnectCore 93 module has been certified by the FCC for use with other products without any further certification (as per FCC section 2.1091). Modifications not expressly approved by Digi could void the user's authority to operate the equipment.

IMPORTANT: OEMs must test final product to comply with unintentional radiators (FCC section 15.107 & 15.109) before declaring compliance of their final product to Part 15 of the FCC Rules.

IMPORTANT: The ConnectCore 93 module has been certified for remote and base radio applications. If the module will be used for portable applications, the device must undergo SAR testing. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Re-orient or relocate the receiving antenna, Increase the separation between the equipment and receiver, Connect equipment and receiver to outlets on different circuits, or Consult the dealer or an experienced radio/TV technician for help.

IMPORTANT: This module has been tested and found to comply with the following requirements for Modular Approval.

Part 15.247 - Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.

Part 15.407 - General technical requirements.

FCC-approved antennas

The ConnectCore 93 SOM can be installed utilizing antennas and cables constructed with non-standard connectors (RPSMA, RPTNC, and so on).

The modules are FCC approved for fixed base station and mobile applications for the channels indicated in the tables below. If the antenna is mounted at least 20 cm (8 in) from nearby persons, the application is considered a mobile application. Antennas not listed in the table must be tested to comply with FCC Section 15.203 (Unique Antenna Connectors) and Section 15.247 (Emissions).

The following table shows the antenna that was used to certify the ConnectCore 93 wireless module. This antenna can be replaced by others, however further certification testing is required. The number of tests to be carried out can be decreased by using an antenna of the same type, i.e. dualband omnidirectional dipole, showing lower peak gain. In such case, only a spot check may be required by the certification laboratories to keep current certifications valid according to FCC regulations. If replacing by an antenna with higher gain, complete radiated tests according to FCC regulations are required by the certification laboratories.

Antenna used to certify the ConnectCore 93 wireless SOM

Antenna Type	Supplier	Antenna part no.	Freq. (MHz)	Peak antenna gain (dBi)	Directional gain (dBi)
Dipole	Linx Technologies Inc.	ANT-DB1-RAF-RPS	2402-2480	2.5	5.51
			5150-5250	4.6	7.61
			5250-5350	4.6	7.61
			5470-5725	4.6	7.61
			5725-5850	4.6	7.61
Dipole	KYOCERA	X9001091-W3DRMB	2402-2480	1.8	-
			5150-5250	4.0	-
			5250-5350	4.0	-
			5470-5725	4.0	-
			5725-5850	4.0	-
Dipole	TAOGLAS	GW.48.A151	2402-2480	3.42	6.43
			5150-5250	4.56	7.57
			5250-5350	4.56	7.57
			5470-5725	4.56	7.57
			5725-5850	4.56	7.57
PCB	ETHERTRONICS	1001932	2402-2480	2.5	5.51
			5150-5250	5	8.01

Antenna Type	Supplier	Antenna part no.	Freq. (MHz)	Peak antenna gain (dBi)	Directional gain (dBi)
			5250-5350	5	8.01
			5470-5725	5	8.01
			5725-5850	5	8.01
PCB	YAGEO	ANTX100P001B24553	2402-2480	4.6	7.61
			5150-5250	4.9	7.91
			5250-5350	3.9	6.91
			5470-5725	5.1	8.11
			5725-5850	5.1	8.11
PCB	KYOCERA	W3P35x8W04-U100D3B0A	2402-2480	2.3	-
			5150-5250	5	-
			5250-5350	5	-
			5470-5725	5	-
			5725-5850	5	-
PCB	TAOGLAS	FXP830.07.0100C *	2402-2480	3.32	6.33
			5150-5250	4.7	7.71
			5250-5350	4.7	7.71
			5470-5725	4.7	7.71
			5725-5850	4.7	7.71

Antenna Type	Supplier	Antenna part no.	Freq. (MHz)	Peak antenna gain (dBi)	Directional gain (dBi)
PCB	TAOGLAS	FXP831.07.0100C	2402-2480	3	6.01
			5150-5250	5.5	8.51
			5250-5350	5.5	8.51
			5470-5725	5.5	8.51
			5725-5850	5.5	8.51

* Antenna gain in free space

Note If using the RF module in a portable application (for example - if the module is used in a hand-held device and the antenna is less than 20 cm (8 in) from the human body when the device is in operation): The integrator is responsible for passing additional SAR (Specific Absorption Rate) testing based on FCC rules 2.1091 and FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields, OET Bulletin and Supplement C. The testing results will be submitted to the FCC for approval prior to selling the integrated unit. The required SAR testing measures emissions from the module and how they affect the person.

RF exposure



CAUTION! To satisfy FCC RF exposure requirements for mobile transmitting devices, a separation distance of 20 cm (8 in) or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance are not recommended. The antenna used for this transmitter must not be co-located in conjunction with any other antenna or transmitter. The preceding statement must be included as a CAUTION statement in OEM product manuals in order to alert users of FCC RF Exposure compliance.

Operating frequency

- 802.11 b/g/n: 2412-2462 MHz
- 802.11 a/n/ac : 5150-5250 MHz; 5250-5350 MHz; 5470-5725MHz; 5725-5850 MHz
- Bluetooth : 2402-2480 MHz

Europe and UK

- 2.412 to 2.472 GHz; 13 channels
- 5.180 to 5.320 GHz; 8 channels
- 5.500 to 5.700 GHz, 8 channels (excludes 5.600 to 5.640 GHz)

CE mark

The ConnectCore 93 SOM is certified for use in several European countries. For information, visit www.digi.com/resources/certifications.

If the ConnectCore 93 SOM is incorporated into a product, the manufacturer must ensure compliance of the final product with articles 3.1a and 3.1b of the RE Directive (Radio Equipment Directive). A Declaration of Conformity must be issued for each of these standards and kept on file as described in the RE Directive (Radio Equipment Directive).

Furthermore, the manufacturer must maintain a copy of the ConnectCore 93 module user manual documentation and ensure the final product does not exceed the specified power ratings, antenna specifications, and/or installation requirements as specified in the user manual. If any of these specifications are exceeded in the final product, a submission must be made to a notified body for compliance testing to all required standards.

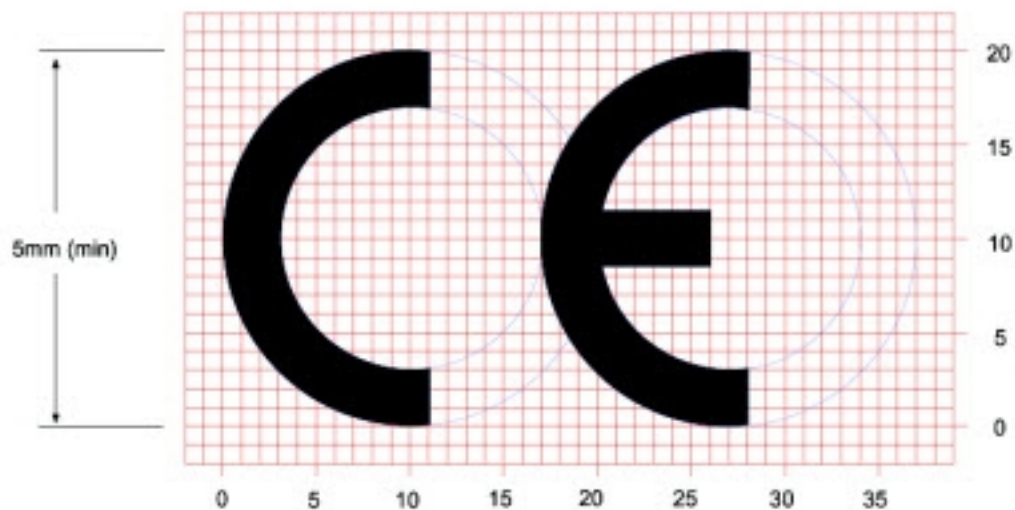
This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

CE and UKCA OEM labeling requirements

The CE and UKCA markings must be clearly visible and legible when you affix it to the product. If this is not possible, you must attach these marks to the packaging (if any) or accompanying documents.

CE labeling requirements

The “CE” marking must be affixed to a visible location on the OEM product. The following figure shows CE labeling requirements.



The CE mark shall consist of the initials “CE” taking the following form:

- If the CE marking is reduced or enlarged, the proportions given in the above graduated drawing must be respected.
- The CE marking must have a height of at least 5 mm except where this is not possible on account of the nature of the apparatus.
- The CE marking must be affixed visibly, legibly, and indelibly.

UK Conformity Assessed (UKCA) labeling requirements



See <https://www.gov.uk/guidance/using-the-ukca-marking> for further details.

You must make sure that:

- if you reduce or enlarge the size of your marking, the letters forming the UKCA marking must be in proportion to the version set out below
- the UKCA marking is at least 5 mm in height - unless a different minimum dimension is specified in the relevant legislation
- the UKCA marking is easily visible, legible (from 1 January 2023 it must be permanently attached)
- the UKCA marking can take different forms (for example, the colour does not have to be solid), as long as it remains visible, legible and maintains the required proportions.

Important note

Digi customers assume full responsibility for learning and meeting the required guidelines for each country in their distribution market. Refer to the radio regulatory agency in the desired countries of operation for more information.

Declarations of Conformity

Digi has issued Declarations of Conformity for the ConnectCore 93 SOM concerning emissions, EMC, and safety. For more information, see <http://www.digi.com/resources/certifications>.


Important note

Digi customers assume full responsibility for learning and meeting the required guidelines for each country in their distribution market. Refer to the radio regulatory agency in the desired countries of operation for more information.

Approved antennas

The same antennas have been approved for Europe as stated in the FCC table for use with the ConnectCore 93 module.

Country list



AT	BE	BG	CZ	DK
EE	FR	DE	IS	IE
IT	EL	ES	CY	LV
LI	LT	LU	HU	MT
NL	NO	PL	PT	RO
SI	SK	TR	FI	SE
CH	UK	HR		

Note This device is restricted to indoor use only when operating in the 5150-5350MHz frequency range within all member states.

Radio Type / Description		Transmitter Frequency (MHz)	Maximum Output Power
Bluetooth	BR+EDR	2402 ~ 2480	15.86 dBm
	Low Energy	2402 ~ 2480	6.88 dBm
WLAN 2.4G	802.11b	2412 ~ 2472	19.24 dBm
	802.11g	2412 ~ 2472	19.31 dBm
	802.11n 20	2412 ~ 2472	19.54 dBm
	802.11n 40	2422 ~ 2462	19.45 dBm
WLAN 5G	802.11a	5150 ~ 5350	22.16 dBm
		5470 ~ 5725	21.99 dBm
		5725 ~ 5850	13.17 dBm
	802.11n_20M 802.11ac_20M	5150 ~ 5350	22.22 dBm
		5470 ~ 5725	22.00 dBm
		5725 ~ 5850	13.16 dBm
	802.11n_40M 802.11ac_40M	5150 ~ 5350	22.55 dBm
		5470 ~ 5725	21.82 dBm
		5725 ~ 5850	13.28 dBm
	80211ac_80M	5150 ~ 5350	21.52 dBm
		5470 ~ 5725	20.90 dBm
		5725 ~ 5850	13.15 dBm

Canada (IC)

IC: 1846A-CC93

PMN: ConnectCore 93

HVIN: 50002172-XX

Canadian Notice

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Avis Canadien

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Labeling requirements

Labeling requirements for Industry Canada are similar to those of the FCC.

Required End Product Labeling

Any device incorporating this module must include an external, visible, permanent marking or label which states:

"Contains IC : 1846A-CC93"

Obligation d'étiquetage du produit final:

Tout dispositif intégrant ce module doit comporter un externe, visible, marquage permanent ou une étiquette qui dit:

"Contient IC : 1846A-CC93"

Transmitters with detachable antennas

This radio transmitter (IC: 1846A-CC93) has been approved by Industry Canada to operate with the antenna types listed in the table above with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio (IC: 1846A-CC93) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types

d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

The ConnectCore 93 module is for professional (OEM) installation only.

Le module ConnectCore 93 doit impérativement être installé par un professionnel (OEM).

RF exposure



To satisfy Industry Canada RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation.

Pour satisfaire aux exigences d'Industrie Canada concernant l'exposition RF, une distance égale ou supérieure à 20cm doit être respectée entre les antennes de ce produit et les personnes se trouvant à proximité.

The preceding statement must be included as a CAUTION statement in OEM product manuals in order to alert users of Industry Canada RF Exposure compliance.

Cette information doit être incluse dans le manuel du produit OEM afin d'alerter les utilisateurs sur la nécessité de respecter l'exposition RF d'Industrie Canada.

Approved antennas

The same antennas have been approved for Canada as stated in the FCC table for use with the ConnectCore 93 module.

Japan

電波法により5GHz帯は屋内使用に限ります。

This device has been granted a designation number by Ministry of Internal Affairs and Communications according to:

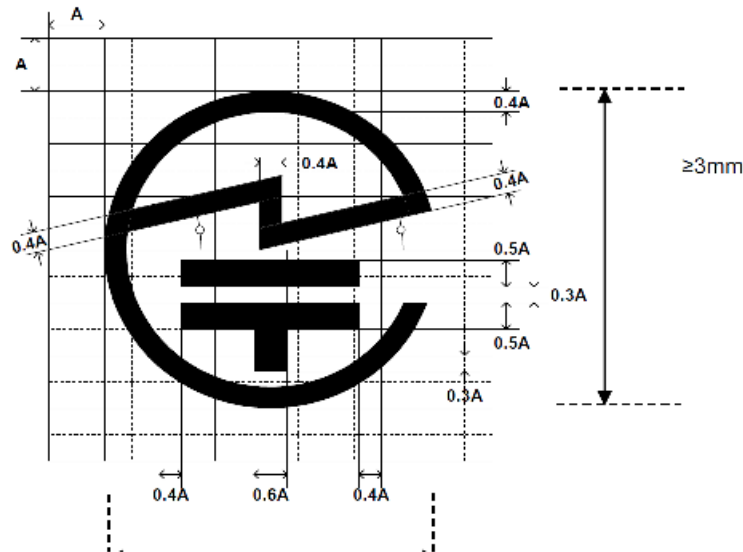
Ordinance concerning Technical Regulations Conformity Certification etc. of Specified Radio Equipment (特定無線設備の技術基準適合証明等に関する規則).

- Article 2, Paragraph 1, Item 19, 19-3, 19-3-2 Category: WW, XW, YW
- Model/Name of equipment: ConnectCore 93
- Radio label marking:
 - R: 210-228884

This device should not be modified (otherwise the granted designation number will be invalid).

- 2.412 to 2.472 GHz; 13 channels
- 5.180 to 5.320 GHz; 8 channels
- 5.500 to 5.700 GHz; 11 channels

Approval Label (MIC Marking)



Label text



Note Due to space constraints, the ConnectCore 93 module label doesn't support radio marking for Japan. If space allows, end product label should support radio marking for Japan. If not, radio marking shall be documented in the user manual.

Note The warning "Indoor only(5GHz)" must go on the end product - or E Label (Display).

Master station: Indoor only

親局: 当該無線設備の送信は、屋内のみにおいて使用可能である旨

Slave station: The transmission of radio equipment is indoors use only (Except when communicating with 5.2GHz high power base stations or relay stations)

子局:当該無線設備の送信は、5.2GHz帯高出力データ通信システムの基地局または陸上移動中継局と通信する場合を除き、屋内においてのみ可能である旨。

If the device is too small it can be displayed on the user manual and on the packaging or container.