

PowerQUICC and QorIQ

Processor Selector Guide

PowerQUICC I

Part Number	Ethernet	E1/T1	UTOPIA	Multi-Channel HDLC	HW Encryption	Package
MPC870	2 x 10/100 Mbps	-	-	-	-	256-pin PBGA
MPC875	1 x 10, 2 x 10/100 Mbps	1	-	32	Y	256-pin PBGA
MPC880	2 x 10, 2 x 10/100 Mbps	2	Y	64	-	357-pin PBGA
MPC885	3 x 10, 2 x 10/100 Mbps	2	Y	64	Y	357-pin PBGA

Constant Features

- Speed: 66–133 MHz
- I/D cache memory: 8/8 KB
- Memory: DRAM
- SPI: 1
- I²C: 1
- GPIO: 18
- USB: Full/Low speed
- Typical power: 0.31W

Note: For information on the MPC85x and MPC86x, visit freescale.com.

PowerQUICC II

Part Number	Speed (MHz)	Ethernet	E1/T1	E3/T3	UTOPIA	Multi-Channel HDLC	GPIO	Local Bus	USB	HW Encryption	Package
MPC8241	166–266	-	-	-	-	-	-	-	-	-	357-pin PBGA
MPC8245	266–400	-	-	-	-	-	-	-	-	-	352-pin TBGA
MPC8247	266–400	3 x 10, 2 x 10/100 Mbps	2	-	-	64	82	-	2.0 Full/Low	-	516-pin PBGA
MPC8248	266–400	3 x 10, 2 x 10/100 Mbps	2	-	-	64	82	-	2.0 Full/Low	Y	516-pin PBGA
MPC8270	266–450	4 x 10, 3 x 10/100 Mbps	4	1	-	128	120	Y	2.0 Full/Low	-	516-pin PBGA/ 480-pin TBGA
MPC8271	266–400	3 x 10, 2 x 10/100 Mbps	2	-	1	64	82	-	2.0 Full/Low	-	516-pin PBGA
MPC8272	266–400	3 x 10, 2 x 10/100 Mbps	2	-	1	64	82	-	2.0 Full/Low	Y	516-pin PBGA
MPC8275	266	4 x 10, 3 x 10/100 Mbps	4	1	2	128	120	Y	2.0 Full/Low	-	516-pin PBGA
MPC8280	333–450	4 x 10, 3 x 10/100 Mbps	8	2	2	256	120	Y	2.0 Full/Low	-	480-pin TBGA

Constant Features

- I/D cache memory: 16/16 KB
- Floating point unit: Double precision
- SPI: 1 (except MPC8241 and MPC8245)
- I²C: 1 (except MPC8241 and MPC8245)
- PCI: 32-bit
- Memory: SDRAM
- Typical power: 0.8–1.7W

PowerQUICC II Pro

Part Number	Typical Power	Speed (MHz)	10/100/1000 Ethernet	10/100 Ethernet	E1/T1	E3/T3	UTOPIA	HDLC	GPIO	PCI	USB	DDR1/2 Memory	Other	Package
MPC8306	1.15W	133-333	-	3	2	-	-	128	56	-	2.0	16-bit DDR2	4 x CAN, TDM, eSDHC	369-pin MAPBGA
MPC8306S	1.15W	133-333	-	3	2	-	-	128	56	-	2.0	16-bit DDR2	TDM	369-pin MAPBGA
MPC8309	1.56W	266-417	-	3	2	-	-	128	64	1 x 32-bit	2.0	16/32-bit DDR2	4 x CAN, TDM, eSDHC, USB 2.0	489-pin MAPBGA
MPC8308	1.23W	266-400	2	-	-	-	-	-	24	-	2.0	16/32-bit DDR2	1 x PCI Express, eSDHC, USB 2.0	473-pin MAPBGA
MPC8313	0.82W	266-400	2	-	-	-	-	-	32	1 x 32-bit	2.0	16/32-bit	-	516-pin PBGA
MPC8314	1.11W	266-400	2	-	-	-	-	-	32	1 x 32-bit	2.0	16/32-bit	2 x PCI Express, TDM	620-pin PBGA
MPC8315	1.11W	266-400	2	-	-	-	-	-	32	1 x 32-bit	2.0	16/32-bit	2 x SATA, 2 x PCI Express, TDM	620-pin PBGA
MPC8321/23	1W	266-333	-	3	4	4	1	64	128	1 x 32-bit	2.0 Full/Low	32-bit	TDM	516-pin PBGA
MPC8343	2.0W	266-400	2	-	-	-	-	-	39	1 x 32-bit	2.0	32-bit	-	620-pin PBGA
MPC8347	2.0W	266-667	2	-	-	-	-	-	52	1 x 32-bit	2.0	32/64-bit	-	620-pin PBGA, 672-pin TBGA
MPC8349	2.0W	400-667	2	-	-	-	-	-	64	1 x 64-bit or 2 x 32-bit	2 x 2.0	32/64-bit	-	672-pin TBGA
MPC8358	3.0W	266-400	2	6	8	2	1	128	212	1 x 32-bit	2.0 Full/Low	1 x 64-bit or 2 x 32-bit	TDM	740-pin TBGA, 668-pin PBGA
MPC8360	5.0W	400-667	2	8	4	1	2	256	212	1 x 32-bit	2.0 Full/Low	1 x 64-bit or 2 x 32-bit	TDM	740-pin TBGA
MPC8377	4.0W	400-800	2	-	-	-	-	-	52	1 x 32-bit	2 x 2.0	32/64-bit	2 x SATA, 2 x PCI Express	689-pin PBGA
MPC8378	4.0W	400-800	2	-	-	-	-	-	52	1 x 32-bit	2.0	32/64-bit	2 x PCI Express	689-pin PBGA
MPC8379	4.0W	400-800	2	-	-	-	-	-	52	1 x 32-bit	2.0	32/64-bit	4 x SATA	689-pin PBGA

Constant Features

- I/D cache memory: 16/16 KB on MPC830x, MPC831x and MPC832x. 32/32 KB on all others
- Floating point unit: Double precision (No FPU in MPC8323/21)
- SPI: 1 on all except MPC832x and MPC8358/60 which have 2
- I²C: 2 on all except MPC8314, MPC8315 and MPC832x which have 1
- DUART: 1 on all except MPC8306, MPC8306/S and MPC8309 which have 2
- Local bus: Y
- Hardware encryption: E version on all except MPC8308, MPC8306, MPC8306/S and MPC8309

PowerQUICC III

Part Number	Speed (MHz)	Typical Power	L2 Cache	10/100/1000 Ethernet	10/100 Ethernet	E1/T1	E3/T3	UTOPIA	HDLC	GPIO	High-Speed Interfaces	USB	Memory
MPC8533	667-1067	2.6W	256 KB	2	-	-	-	-	-	16	1 x PCI, 3 x PCIe	-	DDR1/2
MPC8535	600-1250	3.0W	512 KB	2	-	-	-	-	-	16	1 x PCI, 2 x PCIe, 1 x SATA	2 x 2.0 Full/Low	DDR2/3
MPC8536	600-1500	3.0W	512 KB	2	-	-	-	-	-	16	1 x PCI, 3 x PCIe, 2 x SATA	3 x 2.0 Full/Low	DDR2/3
MPC8540	667-1000	4.8W	256 KB	2	3	-	-	-	-	***	1 x PCI/PCI-X, 1 x pRIO	-	DDR1
MPC8541	533-1000	4.4W	256 KB	2	2	-	-	2	-	32	2 x PCI	-	DDR1
MPC8543	800-1000	6.1W	256 KB	2	-	-	-	-	-	***	1 x PCI, 1 x PCIe, 1 x sRIO	-	DDR1/2
MPC8544	667-1067	2.6W	256 KB	2	-	-	-	-	-	16	1 x PCI, 3 x PCIe	-	DDR1/2
MPC8545	800-1200	6.1W	512 KB	2	-	-	-	-	-	***	2 x PCI, 1 x PCIe	-	DDR1/2
MPC8547	1000-1333	6.5W	512 KB	4	-	-	-	-	-	***	1 x PCI/PCI-X, 1 x PCIe	-	DDR1/2
MPC8548	1000-1500	6.5W	512 KB	4	-	-	-	-	-	***	2 x PCI/PCI-X, 1 x PCIe, 1 x sRIO	-	DDR1/2
MPC8555	667-1000	4.9W	256 KB	2	2	2	-	2	64	32	2 x PCI	1.1 Full/Low	DDR1
MPC8560	667-1000	5.1W	256 KB	2	3	8	2	2	256	32	1 x PCI/PCI-X, 1 x pRIO	-	DDR1
MPC8567	800-1200	8.7W	512 KB	3	8	8	2	2	256	188	1 x PCI, 1 x PCIe, 1 x sRIO	-	DDR1/2
MPC8568	800-1333	8.7W	512 KB	5	10	8	2	2	256	188	1 x PCI, 1 x PCIe, 1 x sRIO	-	DDR1/2
MPC8569	800-1333	3.5W	512 KB	4	8	16	16	1	256	183	1 x PCIe, 2 x sRIO	2.0 Full/Low	DDR2/3
MPC8572	2 x 1067-1500	12W	1 MB	4	1	-	-	-	-	8	3 x PCIe, 1 x sRIO	-	DDR2/3

Constant Features

- I/D cache memory: 32/32 KB
- Floating point unit: Double precision on all devices except MPC8540/41/55/60
- SPI: 1 on MPC8535/36/41/55/60, 2 on MPC8567/68/69
- I²C: 2 on all except MPC8540/41/55/60 which have 1
- Encryption: E version, except MPC8540/60
- Package: 783-pin FCBGA, except MPC8567/68/72: 1023-pin FCBPGA

QorIQ

Part Number	Speed (MHz)	Cores	L2 Cache	L3 Cache	10/100/1000 Ethernet	Data Path	PCIe	USB	sRIO	GPIO	DDR2/3 Memory	Other	Package
QorIQ P Series													
P1010	533-800	1	256 KB	-	3	Software	2	1	-	32	16/32-bit DDR3/3L	TDM, 2 x FlexCAN, Trust Arch., 2 x SATA	425-pin PBGA
P1014	533-800	1	256 KB	-	2	Software	2	1	-	32	16-bit DDR3/3L	TDM, 2 x SATA	425-pin PBGA
P1011	533-800	1	256 KB	-	3	Software	2	2	-	16	32-bit	TDM	689-pin PBGA
P1015	400-667	1	256 KB	-	3	Software	2	2	-	16	32-bit DDR3	TDM	561-pin PBGA
P1020	533-800	2	256 KB	-	3	Software	2	2	-	16	32-bit	TDM	689-pin PBGA
P1024	400-533	2	256 KB	-	3	Software	2	2	-	16	32-bit DDR3	TDM	561-pin PBGA
P1012	533-800	1	256 KB	-	3	Software	2	1	-	16	32-bit	QUICC Engine	689-pin PBGA
P1016	400-667	1	256 KB	-	3	Software	2	1	-	16	32-bit DDR3	QUICC Engine	561-pin PBGA
P1021	533-800	2	256 KB	-	3	Software	2	1	-	16	32-bit	QUICC Engine	689-pin PBGA
P1025	400-533	2	256 KB	-	3	Software	2	1	-	16	32-bit DDR3	QUICC Engine	561-pin PBGA
P1013	667-1067	1	256 KB	-	2	Software	3	1	-	87	32/64-bit	LCD Controller, 2 x SATA, Advanced Power Management	689-pin PBGA
P1022	667-1067	2	256 KB	-	2	Software	3	1	-	87	32/64-bit	LCD Controller, 2 x SATA, Advanced Power Management	689-pin PBGA
P1017	400-800	1	256 KB	-	2	Hardware	3	1	-	16	32-bit DDR3/3L	-	457-pin PBGA
P1023	400-500	2	256 KB	-	2	Hardware	3	1	-	16	32-bit DDR3/3L	-	457-pin PBGA
P2010	800-1200	1	512 KB	-	3	Software	3	1	2	16	32/64-bit	-	689-pin PBGA
P2020	800-1200	2	512 KB	-	3	Software	3	1	2	16	32/64-bit	-	689-pin PBGA
P2040	800-1200	4	-	1 MB	5	Hardware	3 gen 2.0	2	2	32	1 x 32/64-bit DDR3/3L	Trust Arch., 2x SATA	780-pin PBGA
P2041	1200-1500	4	128 KB/core	1 MB	5 + 1 x 10G	Hardware	3 gen 2.0	2	2	32	1 x 32/64-bit DDR3/3L	Trust Arch., 2 x SATA	780-pin PBGA
P3041	1200-1500	4	128 KB/core	1 MB	5 + 1 x 10G	Hardware	4 gen 2.0	2	2	32	1 x 32/64-bit DDR3/3L	Trust Arch., 2 x SATA	1295-pin PBGA
P4040	1200-1500	4	128 KB/core	2 MB	8 + 2 x 10G	Hardware	3 gen 2.0	2	2	32	2 x 32/64-bit	Trust Arch.	1295-pin PBGA
P4080	1200-1500	8	128 KB/core	2 MB	8 + 2 x 10G	Hardware	3 gen 2.0	2	2	32	2 x 32/64-bit	Trust Arch.	1295-pin PBGA
P5010	1600-2000	1	512 KB/core	1 MB	5 + 1 x 10G	Hardware	4 gen 2.0	2	2	32	1 x 32/64-bit DDR3/3L	Trust Arch., 2 x SATA	1295-pin PBGA
P5020	1600-2000	2	512 KB/core	2 MB	5 + 1 x 10G	Hardware	4 gen 2.0	2	2	32	2 x 32/64-bit DDR3/3L	Trust Arch., 2 x SATA	1295-pin PBGA

QorIQ AMP Series

T4240	1500-1800	24 (virtual)	3x 2 MB	3x 512 KB	16x GbE or 4x 10G + 8x GbE	Hardware	4 gen 2.0/3.0	2	2	96	Three 64-bit DDR3/3L	Trust Arch., 2x SATA, Interlaken LA-1	
T4160	1333-1800	16 (virtual)	2x 2 MB	2x 512 KB	12x GbE or 2x 10G + 8x GbE	Hardware	4 gen 2.0/3.0	2	2	96	Three 64-bit DDR3/3L	Trust Arch., 2x SATA, Interlaken LA-1	

Constant Features

- I/D cache memory: 32/32 KB
- SPI/eSPI
- 1x DUART except P1010, P1014, P204x, P3, P4040 and P4080 which have 2x DUART
- I²C: P1 and P2 have 2 ports, P204x, P3, P4 and P5 have 4 ports
- High-Speed USB 2.0
- Local bus, HW encryption versions
- P1021 and P1012 include QUICC Engine technology (UTOPIA, 2 x 10/100 Ethernet, TDM)
- eSDHC except P1010, P1014, P1017, P1022, P2020, P2010

QorIQ Qonverge

Part Number	Speed (MHz)	Cores	L2 Cache	10/100/1000 Ethernet	Antenna Interface	USB	GPIO	DDR2/3 Memory	Other	Package
BSC9130	800	One e500 One SC3850	256 KB 512 KB	2x 1G with IEEE® 1588	3x JESD207 Parallel Port 3x MaxPHY Serial Port	1	96	1x 16/32-bit DDR3/3L	Trust Arch., Integrated Flash Memory Controller, MAPLE Hardware Accelerators	520 pin FC-PBGA
BSC9131	1000	One e500 One SC3850	256 KB 512 KB	2x 1G with IEEE® 1588	3x JESD207 Parallel Port 3x MaxPHY Serial Port	1	96	1x 16/32-bit DDR3/3L	Trust Arch., Integrated Flash Memory Controller, MAPLE Hardware Accelerators	520 pin FC-PBGA
G1110	800-1000	One e500 One SC3850	256 KB 512 KB	2x 1G with IEEE® 1588	-	1	96	1x 16/32-bit DDR3/3L	Trust Arch., Integrated Flash Memory Controller	520 pin FC-PBGA

Constant Features

- Enhanced secure digital host controller
- TDM with one TDM port
- Four enhanced serial peripheral interfaces: BSC9130/31
- Two enhanced serial peripheral interfaces: G1110
- Programmable interrupt controller (PIC) compliant with OpenPIC standard
- Four-channel DMA controller: 1
- I²C: 1
- Duart: 2
- PWM: 2

Host

Part Number	Speed (MHz)	L2 Cache	10/100/1000 Ethernet	PCIe	sRIO	Memory	Package
MPC8610	667-1333	256 KB	-	2	-	DDR1/2	783-pin FCPBGA
MPC8641	1000-1500	1 MB	4	2	1	2 x DDR2	1023-pin FCPBGA
MPC8641D	1000-1500	1 MB/core	4	2	1	2 x DDR2	1023-pin FCPBGA
MPC8640	1000-1250	1 MB	4	2	1	2 x DDR2	1023-pin FCPBGA
MPC8640D	1000-1250	1 MB/core	4	2	1	2 x DDR2	1023-pin FCPBGA

Constant Features

- I/D cache memory: 32/32 KB
- SPI (MPC8610 only)
- DUART
- I²C
- GPIO: 32
- Local bus
- AltVec technology
- MPC8610 contains LCD controller and SSI audio

Development Systems

Family	Products Supported	Non-RoHS Part No.	RoHS Part No.	DISTY S/R	Description
MPC82xx	MPC8272 Family	MPC8272ADS		\$2,995	MPC8272 Family Application Development System
	MPC832x Family		MPC8323E-MDS-PB	\$1,800	MPC8323E Processor Board (stand alone)
MPC83xx	MPC834x Family		MPC8349EA-MDS-PB	\$1,845	MPC8349E Processor Board (can be stand alone)
	MPC834x Family		MPC8349EA-MDS	\$4,199	MPC8349E Modular Development Kit
	MPC836x Family		MPC8360EA-MDS-PB	\$1,400	MPC8360E Processor Board for Rev 2.x Silicon (can be stand alone)
	MPC83xx Family		PQ-MDS-PIBE	\$2,499	MPC83xx/MPC85xx Platform I/O Board
	MPC83xx Family		PQ-MDS-USB	\$349	MPC83xx/MPC85xx USB PMC Card
	MPC83xx Family		PQ-MDS-PEXPCI	\$349	MPC8xxx Adaptor for PCI Express
	MPC83xx Family		PQ-MDS-T1E	\$1,395	MPC83xx/MPC85xx SLIC SLAC T1/E1 Card
	MPC83xx/MPC85xx Family	PQ-MDS-QOC3		\$1,495	MPC83xx/MPC85xx Quad OC-3 ATM Card
	MPC837x Family		MPC837xE-MDS-PB	\$2,800	MPC837x Processor Board
	MPC85xx	MPC8536E		MPC8536DS	\$3,395
MPC8536E			MPC8536-RDK	\$995	MPC8536E Reference Design Kit (carrier board and MPC8536E COM module)
MPC8540			MPC8540ADS-BGAE	\$4,996	PowerQUICC III MPC8540 Application Development System
MPC8544			MPC8544DS	\$3,395	PowerQUICC III MPC8544 Development System
MPC8560			MPC8560ADS-BGAE	\$4,996	PowerQUICC III MPC8560 Application Development System
MPC8555, MPC8541		PPCEVAL-CDS-8555	MPC8555CDS	\$4,996	PowerQUICC III MPC8555 Configurable Development System Supports MPC8555 and MPC8541
MPC8548, MPC8547, MPC8545, MPC8543		PPCEVAL-CDS-8548	MPC8548CDS	\$5,499	PowerQUICC III MPC8548 Configurable Development System Supports MPC8548, MPC8547, MPC8545 and MPC8543
MPC8568			MPC8568E-MDS-PB	\$2,495	MPC8568 Processor Board
MPC8568E			PQ-MDS-T1E	\$1,395	MPC83xx/MPC85xx SLIC SLAC T1/E1 Card
MPC8568E		PQ-MDS-QOC3		\$1,495	MPC83xx/MPC85xx Quad OC-3 ATM Card
MPC8569E			MPC8569E-MDS-PB	\$2,995	PowerQUICC III MPC8569E Modular Development System
MPC8572 (dual core)		MPC8572DS	\$3,995	MPC8572 Development System	
MPC86xx	MPC8641D, MPC8640D (dual core)		MCEVALHPCN-8641D	\$3,999	ATX Performance Platform
QorIQ P2 and P1 Families	P2020/P2010		P2020DS-PC	\$3,500	QorIQ P2020/P2010 Development System
	P1021/P1012		P1021-MDS-PB	\$3,000	QorIQ P1021 Modular Development System
	P1025		TWR-P1025	\$199	Tower System for Rapid Prototyping
	P2020/P2010		P2020COME-DS-PB	\$1,499	QorIQ P2020 Development System (COM Express board on carrier card)
	P1010/P1014		P1010-RDB	\$499	Low-Cost mITX Reference Design
	P1022/P1013		P1022DS-PB	\$3,395	QorIQ P1022 Development System
	P1022/P1013		P1022RDK	\$995	Low-Cost mITX Carrier + Processor Module
QorIQ P3, P4 and P5 Families	P3041		P3041DS-PA	\$3,995	QorIQ P3041 Development System
	P4080/P4041		P4080DS-PB	\$4,000	QorIQ P4080 Development System
	P4080/P4040		P4080COME-DS-PB	\$1,499	QorIQ P4080 Development System (COM Express board on carrier card)
	P5020, P5010		P5020DS-PA	\$3,995	QorIQ P5020 Development System
	P3041, P4040, P4080, P5010, P5020		SGMII-PEX-RISER	\$650	SGMII Riser Card for QorIQ P4/P3/P5
	P2041, P3041, P4080, P5010, P5020		XAUI-RISER	\$1300	XAUI Riser Card for QorIQ P4/P3/P5/P204x
Reference Platforms					
MPC82xx	All MPC82xx	MPC8260ADS-FLASH		\$150	Flash Chip for MPC8260ADS
	All MPC82xx	MPCRCOP-3V		\$500	COP Interface
MPC83xx	MPC8306		TWR-MPC8309	\$199	Tower-Based Main Processor Module (TWR-MPC8309 provides all features of MPC8306)
	MPC8308		MPC8308-RDB	\$299	PowerQUICC II Pro Reference Platform
	MPC8308		MPC8308-NSG	\$349	Network Smart Gateway Reference Design Kit
	MPC8309		TWR-MPC8309	\$199	Tower-Based Main Processor Module
	MPC8313		MPC8313E-RDBC	\$299	PowerQUICC II Pro Reference Platform
	MPC8321, MPC8323		MPC8323E-RDB	\$399	PowerQUICC II Pro Reference Platform
	MPC8343, MPC8347, MPC8349		MPC8349E-mITXE	\$699	PowerQUICC II Pro Reference Platform
	MPC8315/14		MPC8315E-RDBA	\$499	Cost-Effective Reference Design Board
	QorIQ P2 and P1 Families	P1020/P1011		P1020RDB-PC	\$499
P2020/P2010			P2020RDB-PCA	\$595	QorIQ P2020 Reference Platform
P2020/P2010			P2020AMC-SA	\$6000	QorIQ P2020/P2010 AMC Form Factor by GDA
P2040/P2041			P2041RDB-PA	\$995	QorIQ P2041 Reference Platform
BSC913x	BSC9130, BSC9131, G1110		PSC9131RDB	\$900	QorIQ Qonverge BSC9131 Reference Design Board

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