MOTOROLA

Networking and Computing Systems Group

SG175/D
REV 15

Networking & Communications Systems Division (NCSD)

Personal Computing Systems Division (PCSD)

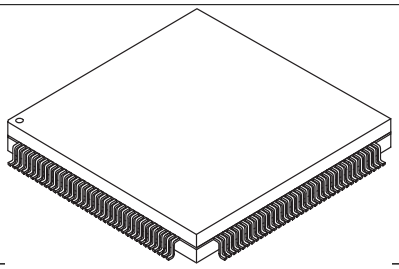
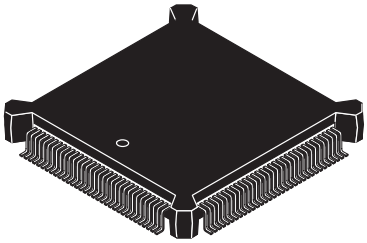
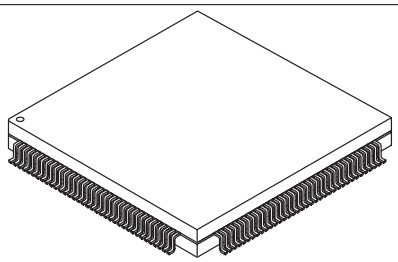
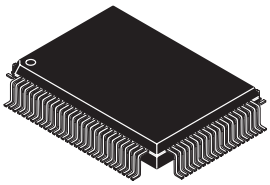
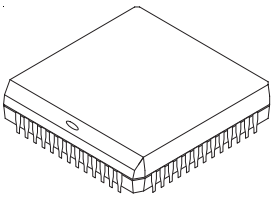
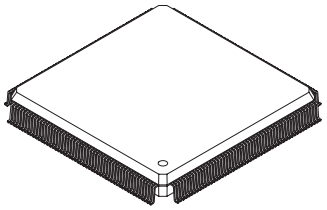
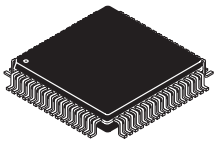
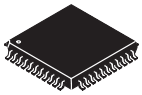
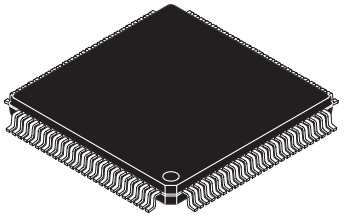
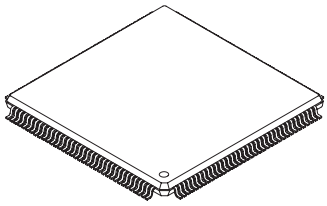
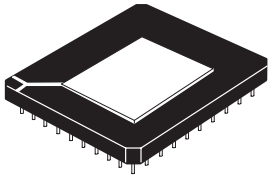
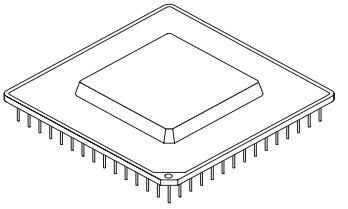
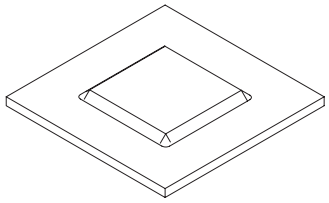
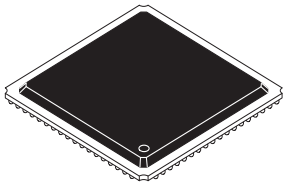
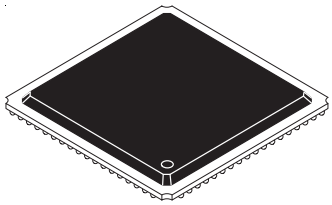
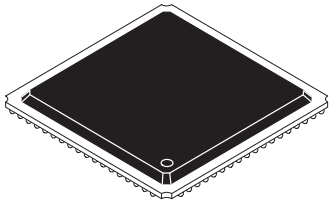
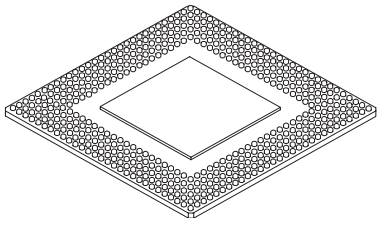
Product Information

First Quarter 2000

PowerPC™ CPUs and Integrated Communications Processors
ColdFire® CPUs and Integrated Communications Processors
68K CPUs and Integrated Communications Processors
Codecs, Transceiver and Modem Products
Advanced Clock Drivers
Networking Memory Products

Digital DNA™ from Motorola

THE HEART OF SMART

		
EM = Plastic Quad (Gull Wing)	**FC = Plastic Quad (Gull Wing)**	**FE = Ceramic Quad (Gull Wing)**
		
FG = Plastic Quad Flat Pack (PQFP)	**FN = Plastic Quad Pack (PLCC)**	**FT = Plastic Flat Pack (28 x 28 mm)**
		
FU = Plastic Quad Flat Pack (14x14 mm)	**PB = LQFP (10mm x 10mm) Plastic**	**PU = Thin Quad Flat Pack 100-lead (Plastic)**
		
PV = TQFP (20x20 mm) 144-lead (Plastic)	**RC = Pin Grid Array, Gold Lead Finish**	**RP = Plastic Pin Grid Array**
		
RX = CBGA without Lid	**ZC = GT PAC, 256 Lead**	**ZP = Plastic Ball Grid Array, 357 Lead**
		
ZT= Plastic Ball Grid Array, 256 Lead	**ZU = Tape Ball Grid Array, 352 & 480 Lead**	

PowerPC, ColdFire and 68K CPUs and Integrated Processors

100, 600, and 700 Series PowerPC Processors & Chipsets

Standard temp: 0° to +105°C Tj (junction temperature)

Device No.	Package	Speeds	Apps Modr	Rev	Process	Voltage Core	Voltage IO/tol.	SOQ	MPQ	POQ	Description
106											
MPC106A	304-Lead RX	66	C	G=4.0	HiP 1.4	3.3±5%	3.3/5.0	1	1	55	60x to PCI bridge, multiple-processor support, L2 cache controller, memory controller with support for EDO/FPM, DRAM, SDRAM, ROM, and flash ROM.
MPC106A	304-Lead RX	83	D	G=4.0	HiP 1.4	3.3±5%	3.3/5.0	1	1	55	
MPC106A	304-Lead RX	66, 83	T	G=4.0	HiP 1.4	3.3±5%	3.3/5.0	0	4	55	
EC603e											
KMPE603E	240-Lead FE	100, 133	L	N=4.1	HiP 1.3	3.3±5%	3.3/5.0	2	2	2	32-bit PowerPC superscalar MPU (3 instructions per cycle) with dual 16k instruction and data caches, 32- and 64-bit external data bus, 2.5- or 3.3-volt core and 3.3-volt I/O. (Not recommended for new designs.)
MPE603E	240-Lead FE	100, 133	L	N=4.1	HiP 1.3	3.3±5%	3.3/5.0	0	24	24	
MPE603E	255-Lead RX	100, 133	L	N=4.1	HiP 1.3	3.3±5%	3.3/5.0	1	1	60	
MPE603R	255-Lead RX	200, 266, 300	L	C=2.1	HiP 3.0	2.5±5%	3.3/5.0	1	1	60	
603e											
KMPC603E	240-Lead FE	100, 133	L	N=4.1	HiP 1.3	3.3±5%	3.3/5.0	2	2	2	32-bit PowerPC superscalar MPU (3 instructions per cycle) with dual 16k instruction and data caches, single/double precision IEEE FPU, 32- and 64-bit external data bus, 2.5- or 3.3-volt core and 3.3-volt I/O.
MPC603E	240-Lead FE	100, 133	L	N=4.1	HiP 1.3	3.3±5%	3.3/5.0	0	24	24	
MPC603E	240-Lead FE	100, 133	T	N=4.1	HiP 1.3	3.3±5%	3.3/5.0	0	24	24	
MPC603E	255-Lead RX	100, 133	L	N=4.1	HiP 1.3	3.3±5%	3.3/5.0	1	1	60	
MPC603E	255-Lead RX	100, 133	T	N=4.1	HiP 1.3	3.3±5%	3.3/5.0	0	60	60	
MPC603R	255-Lead RX	200, 266, 300	L	C=2.1	HiP 3.0	2.5±5%	3.3/5.0	1	1	60	
MPC603R	255-Lead RX	200, 266	T	C=2.1	HiP 3.0	2.5±5%	3.3/5.0	1	1	60	
740/750											
MPC740A	255-Lead RX	200, 233, 266	L	H=3.1	HiP 3.0	2.6±0.1	3.3	1	1	60	32-bit PowerPC superscalar MPU (3 instructions per cycle) with dual 32k instruction and data caches, single/double precision IEEE FPU, and 64-bit external data bus. The PowerPC 750 also has external L2 cache interface (up to 1 meg) with integrated controller and cache tags.
MPC740A	255-Lead RX	200, 266	T	H=3.1	HiP 3.0	2.6±0.1	3.3	0	60	60	
MPC750A	360-Lead RX	200, 233, 266	L	H=3.1	HiP 3.0	2.6±0.1	3.3	1	1	44	
MPC750A	360-Lead RX	200, 266	T	H=3.1	HiP 3.0	2.6±0.1	3.3	0	44	44	
XPC740P	255-Lead RX	300, 333	L	E=1.2	HiP 3.5	1.9±0.1	3.3	1	1	60	
XPC750P	360-Lead RX	300, 333	L	E=1.2	HiP 3.5	1.9±0.1	3.3	1	1	44	
XPC750P	360-Lead RX	400	P	E=1.2	HiP 3.5	2.05±0.05	3.3	1	1	44	
XPC750P	360-Lead RX	366	R	E=1.2	HiP 3.5	2.05±0.05	3.3	1	1	44	
7400											
XPC7400	360-Lead RX	350, 400, 450, 500	P	K=2.9	HiP 5.6	2.15±0.05	3.3	1	1	44	32-bit PowerPC superscalar MPU (3 instructions per cycle) combined with 128-bit AltiVec technology vector processing implementation, dual 32k instruction and data caches, single/double precision IEEE FPU, and 64-bit external data bus and 32-bit address bus. The MPC 7400 also has external L2 cache interface (up to 2 MB) with integrated controller and cache tags.
XPC7400	360-Lead RX	350, 400	L	K=2.9	HiP 5.6	1.8±0.1	3.3	1	1	44	

KMPC/KXPC = Sample

Apps mods: T = -40°C to 105°C Tj; N = 65°C; P = 65°C; R = 105°C

MPC823 Integrated PowerPC Microprocessors for Portable Systems

Device No.	Package	Speeds	Rev	Device Name	Temp	SOQ	MPQ	POQ	Description
823									
XPC823	256-Lead ZT	66, 75, 81	B2	Portable System MPU	CZT 66	0	60	300	PowerPC MPU for mobile computing.
XPC823	256-Lead ZC	66, 75, 81	B2		CZC 66	0	90	420	
XPC823E	256-Lead ZT	66, 75	B2		CZT 66	0	60	300	
						For sample order—KXPC823ZT81B2, KXPC823ZC81B2, KXPC823EZT75B2			

MPC850 and MPC860 Integrated PowerPC Communications Processors

Standard temp: 0° to +95°C Tj (junction temperature)

Device No.	Package	Speeds	Rev	Device Name	Temp** (-40 to +85°C)	SOQ	MPQ	POQ	BRICK	Description
850										
XPC850	256-Lead ZT	50, 66, 80	B	Low-Cost Integrated PowerPC MPU	CZT50	0	60	300		Low cost, integrated PowerPC MPU with tailored Communication Processing Module (CPM) including Universal Serial Bus (USB).
XPC850DE	256-Lead ZT	50, 66, 80	B		—	0	60	300		
XPC850SR	256-Lead ZT	50, 66, 80	B		TBD	0	60	300		
						For sample order—KXPC850SRZT80B				
855										
XPC855T	357-Lead ZP	50, 66	D3	Low-Cost Integrated PowerPC MPU	CZP50, 66	0	44	220		Low cost, integrated PowerPC MPU with tailored Communication Processing Module (CPM) including Fast Ethernet.
XPC855T	357-Lead ZP	80	D3		—	0	44	220		
						For sample order—KXPC855TZP66D3, KXPC855TZP80D3				
860 rev. B-C										
XPC860	357-Lead ZPZP	33, 50, 66	C1	PowerQUICC™ PowerPC MPU	CZP 33, 50	0	44	220		PowerQUICC family with embedded PowerPC superscalar MPU —with 4KB I-cache, 4 KB D-cache, and MMUs integrated with Communication Processing Module (CPM) of earlier generation 68360 QUICC.™
XPC860DC	357-Lead ZPZP	33, 50, 66	C1		CZP 33, 50	0	44	220		
XPC860DE	357-Lead ZPZP	33, 50, 66	C1		CZP 33, 50	0	44	220		
XPC860DH	357-Lead ZPZP	33, 50, 66	C1		CZP 33, 50	0	44	220		
XPC860DT	357-Lead ZPZP	50	B.3/B.5		CZP 50	0	44	220		
XPC860EN	357-Lead ZPZP	33, 50, 66	C1		CZP 33, 50	0	44	220		
XPC860MH	357-Lead ZPZP	33, 50, 66	C1		CZP 33, 50	0	44	220		
XPC860SR	357-Lead ZPZP	33, 50, 66	C1		CZP 33, 50	0	44	220		
XPC860T	357-Lead ZPZP	33, 50	B.3/B.5		CZP 33, 50	0	44	220		
						For sample order—KXPC860, KXPC860DC, KXPC860DE, KXPC860DH, KXPC860DP, KXPC860DT, KXPC860EN, KXPC860MH, KXPC860P, KXPC86SR, KXPC860T.				

MPC850 and MPC860 Integrated PowerPC Communications Processors

Standard temp: 0° to +95°C Tj (junction temperature)

Device No.	Package	Speeds	Rev	Device Name	Temp** (-40 to +85°C)	SOQ	MPQ	POQ	BRICK	Description
860 rev. D				PowerQUICC™ PowerPC MPU						
XPC860DE	357-Lead ZP	50, 66, 80	D.3		CZP 50, 66	0	44	220		Revision D.3 of PowerQUICC family, including the 860P and 860 DP with 16K I-cache and 8K D-cache.
XPC860DP	357-Lead ZP	50, 66, 80	D.3		CZP 50, 66	0	44	220		
XPC860DT	357-Lead ZP	50, 66, 80	D.3		CZP 50, 66	0	44	220		
XPC860EN	357-Lead ZP	50, 66, 80	D.3		CZP 50, 66	0	44	220		
XPC860P	357-Lead ZP	50, 66, 80	D.3		CZP 50, 66	0	44	220		
XPC860SR	357-Lead ZP	50, 66, 80	D.3		CZP 50, 66	0	44	220		
XPC860T	357-Lead ZP	50, 66, 80	D.3		CZP 50, 66	0	44	220		
						For sample order—KXPC860PZP66D3, KXPC860PZP80D3, KXPC860TZP66D3, KXPC860TZP80D3.				

MPC850/MPC860 Processor Derivatives

Device	850	850DE	850SR	860	860DC	860DE	860DH	860DP	860DT	860EN	860MH	860P	860SR	860T
SCCs	1	2	2	4	2	2	2	2	2	4	4	4	4	4
Ethernet	Yes	Yes	Yes	—	SCC1	Yes	Yes	10/100	10/100	Yes	Yes	10/100	Yes	10/100
ATM	—	—	Yes	—	—	—	—	Yes	Yes (D.3)	—	—	Yes	Yes	Yes (D.3)
USB	Yes	Yes	Yes	—	—	—	—	—	—	—	—	—	—	—
MHDLC	—	—	Yes	—	—	—	Yes	Yes	Yes	—	Yes	Yes	Yes	Yes
PCMCIA	1	1	1	2	2	2	2	2	2	2	2	2	2	2

MPC8240 Integrated PowerPC Processors

Standard temp: 0° to +105°C Tj (junction temperature)

Device No.	Package	Speeds	Apps Modr	Rev	Process	Voltage Core	Voltage IO/tol.	SOQ	MPQ	POQ	Description
8240											
XPC8240	352-Lead ZU	200	L	C=111	HiP 3.0	2.5 ± 5%	3.3/5.0	0	24	24	32-bit superscalar PowerPC processor core with integrated peripheral logic. Supports up to 100 MHz 64-bit memory interface and up to 66 MHz 32-bit PCI interface.
XPC8240	352-Lead ZU	250	R	C=111	HiP 3.0	2.625 ± .125 V	3.3/5.0	0	24	24	
KXPC8240	352-Lead ZU	200	L	C=111	HiP 3.0	2.5 ± 5%	3.3/5.0	2	2	2	
KXPC8240	352-Lead ZU	250	R	C=111	HiP 3.0	2.625 ± .125 V	3.3/5.0	2	2	2	
KXPC = Sample			Apps mods: L /R= 105°C Tj								

MPC8260 PowerQUICC II™ Integrated PowerPC Processors

Device No.	Package	Speeds	Rev	Device Name	Temp	SOQ	MPQ	POQ	Description
8260				PowerQUICC II PowerPC MPU					
XPC8260	480-Lead ZU	133, 150, 166, 200	A		—	0	21	105	Next-generation of PowerQUICC product family
						For sample order—KXPC8260ZU133A, KXPC8260ZU150A, KXPC8260ZU166A, KXPC8260ZU200A			

68K Stand-Alone CPUs

Device No.	Package	Speeds	Rev	Device Name	Temp** (-40 to +85°C)	SOQ	MPQ	POQ	BRICK	Description
MC68EC000	68-Lead FN	8, 10, 12, 16, 20		8-/16-/32-Bit HCMOS Embedded MPU		0	18	1008		Low-cost embedded control MPU with 8-/16-bit selectable data bus.
	64-Lead FU	8, 10, 12, 16, 20				0	84	252	420	
						For FN, FU sample order—SPAKEC000FNXX, SPAKEC000FUXX				
MC68HC000	68-Lead FN, 68-Lead RC	8, 10, 12, 16, 20 8, 10, 12, 16		HCMOS 16-/32-Bit MPU	CFN8, 10, 12, 16 CRC8, 10, 12, 16	5 0 0	5 78 21	160 780 210		Completely pin and timing MC68000-compatibility with a tenth of the power dissipation.
						For FC, FN, P, RC sample order—SPAKHC000FCXX, SPAKHC000FNXX, SPAKHC000PXX, SPAKH000RCXX*				
MC68HC001	68-Lead FN, 68-Lead RC	8, 10, 12, 16, 8, 10, 12, 16		Staticlly Switchable 8-/16-Bit Data Bus	CFN8, 10 CRC8	0 0	18 21	1008 210		Functionally compatible with MC68000 and MC68008.
						For FN, RC sample order—SPAKHC001FNXX, SPAKHC001RCXX*				
MC68SEC000	64-Lead FU, 68-Lead PB	10, 16, 20 10, 16, 20		8-/16-/32-Bit Static HCMOS Embedded MPU	CFN8, 10 CRC8	0 1	84 1	252 1		Static version of the MC68EC000.
						For FU sample order—SPAKSEC000FUXX				

68K Stand-Alone CPUs (Continued)

Device No.	Package	Speeds	Rev	Device Name	Temp** (-40 to +85°C)	SOQ	MPQ	POQ	BRICK	Description
MC68020	114-Lead RC 132-Lead FE 114-Lead RP 132-Lead FC	12, 16, 20, 25, 33 16, 20, 25, 33 16, 20, 25 16, 20, 25, 33	E E E E	32-Bit MPU	CRC16, 20, 25 CRP16 CFC16, 25	1 0 1 0	1 36 1 36	14 180 13 144	 180	Complete 32-bit MPU. 5-Gbyte linear address space. Co-processor interface. Instruction cache. Dynamic bus sizing. Excellent MPU for graphics control. On-chip cache speeds drawing algorithms. Bit field support for pixel manipulation. (RP and FE packages not recommended for new designs.)
						For FC, FE sample order—SPAK020FCXXE, SPAK020FEXXE, SPAK020RCXXE				
MC68EC020	100-Lead FG 100-Lead RP	16, 25 16, 25		32-Bit Embedded MPU	CFG16 CRP25	0 1	66 1	264 13	330	32-bit data bus MPU with 24-bit address bus. Instruction cache. Dynamic bus sizing. Coprocessor interface. Low-cost packaging. (RP packages not recommended for new designs.)
						For FG sample order—SPAKEC020FGXX				
MC68030	128-Lead RC 124-Lead RP 132-Lead FE	16,20,25,33,40,50 16,20,25,33 16,20,25,33	C C C	Enhanced 32-Bit MPU	CRC25,33 CRP16,20,25,33	1 1 0	1 1 36	14 14 180		Complete 32-bit MPU with on-chip instruction and data caches, internal parallel buses, enhanced bus controller, and on-chip MMU. (RP packages not recommended for new designs.)
						For FE sample order—SPAK030FEXXC, SPAK030RCXXC				
MC68EC030	124-Lead RP 132-Lead FE	25, 40 25, 40	C C	Embedded MPU	CRP25	1 1	1 36	14 180		32-bit MPU for embedded applications. On-chip instruction and data caches provide high-speed access for control routines and data. Utilizes low-cost DRAM bus interface. (RP packages not recommended for new designs.)
						For FE, PV sample order—SPAKEC030FEXXC, SPAKEC030PVXXC				
MC68040	179-Lead RC 184-Lead FE	25, 33, 40 25, 33, 40		32-Bit MPU MMU FPU		1 0	1 24	10 96		Complete 32-bit MPU with on-chip instruction/data caches (4k bytes each). On-chip MMU. Full IEEE floating point, multiprocessing support with full M68000 Family compatibility.
						For FE sample order—SPAK040FEXX				
MC68EC040	179-Lead RC 184-Lead FE	20, 25, 33, 40 20, 25, 33, 40		Embedded 32-Bit High Performance Processor		1 0	1 24	10 96	120	High-performance 32-bit MPU with on-chip instruction and data cache provides high-speed access for control routines and data. Utilizes low-cost DRAM bus interface.
						For sample order—SPAK68EC040RCXX, SPAKEC040FEXX, SPAKEC040FSXX				
MC68LC040	179-Lead RC 184-Lead FE	20, 25, 33, 40 20, 25, 33, 40		High Performance 32-Bit Processor		1 0	1 24	10 96	120	68040-compatible integer unit and MMU. Ideal solution for cost-sensitive computer or sophisticated embedded applications.
						For FE sample order—SPAKLC040FEXX				
MC68040V	179-Lead RC 184-Lead FE	25, 33,40 @ 3.3 V 25,33 @ 3.3 V		32-Bit MPU MMU, Low-Voltage		1 0	1 24	0 96		Low-voltage complete 32-bit MPU with on-chip instruction/data caches (4k bytes each). On-chip MMU. Multiprocessing support.
						For FE sample order—SPAKEC040VFEXX, SPAKEC040VRCXX				
MC68060	206-Lead RC	50, 60		Superscalar 32-Bit Processor		0	1	10		RISC hybrid superscalar MPU with full M68000 Family compatibility. Includes dual integer units, on-chip instruction/data caches (8K bytes each), on-chip MMU, and full IEEE compliant FPU.
						For RC sample order—SPAK060RC60				
MC68EC060	206-Lead RC 304-Lead ZU	50, 66, 75 50, 66, 75		Superscalar 32-Bit Processor		0 1	1 27	10 27		RISC hybrid superscalar MPU with full M68000 Family compatibility. Includes dual integer units, on-chip instruction/data caches (8K bytes each). Ideal for high-performance embedded control applications.
						For RC sample order—SPAKEC060RC50, SPAKEC060RC60, SPAKEC060RC75				
MC68LC060	206-Lead RC	50, 66, 75		Superscalar 32-Bit Processor		0	1	10		RISC hybrid superscalar MPU with full M68000 Family compatibility. Includes dual integer units, on-chip instruction/data caches (8K bytes each) and on-chip MMU.
						For RC sample order—SPAKLC060RC50, SPAKLC060RC60, SPAKLC060RC75				
MC68882	68-Lead RC 68-Lead FN	16,20,25,33,40,50 16,20,25,33,40	A A	Enhanced Floating-Point Coprocessor (EFPCP)	CRC16,20,25,33 CFN16,20,25,33	1 1	1 1	21 18		Pin-to-pin timing and software compatibility with MC68881. Dual ported registers and increased pipelining allows 2-4 × performance of MC68881.
						For RC sample order—SPAK68882RC16A, SPAK68882RC20A, SPAK68882RC25A, SPAK68882RC33A For CRC sample order—SPAK68882CRC16A, SPAK68882CRC20A, SPAK68882CRC25A, SPAK68882RC33A For CFN sample order—SPAK68882CFN16A, SPAK68882CFN20A, SPAK68882CFN25A, SPAK68882CFN33A				

*** Extended temperature devices with minimum order requirements.*

68K General-Purpose Integrated Processors

Device No.	Package	Speeds	Rev	Device Name	Temp** (-40 to +85°C)	SOQ	MPQ	POQ	Brick	Description
MC68306	132-Lead FC 144-Lead PV	16, 20 16, 20	B B	Integrated EC000 Processor	CFC16	0 0	36 60	144 600	300	68000 CPU, 68681 DUART, DRAM control all in one chip.
						For FC, PV sample —SPAK306FCXXB, SPAK306PVXXB				
MC68340 MC68340V	144-Lead FE 144-Lead PV 144-Lead FT 144-Lead FE 144-Lead PV	16, 25 16, 25 16, 25 16 @ 3.3V 16 @ 3.3V	E E E E E	Integrated Processor with DMA	CFE16, CFE25 CPV16, CPV25 CFT16, CFT25	0 0 0 0 0	24 60 24 24 60	96 60 96 96 60	120 300 120	CPU32 core processor for data movement applications. Two channel DMA, two serial channels, two timers, chip selects, wait-state generation, and glue logic. MC68340V is the 3.3 volt version of the MC68340. (FE package not recommended for new designs.)
						For PV sample order—KMC68EN302PV25B				
Note: **Extended temperature devices with minimum order requirements. All package/speed combinations may not be valid - consult factory to verify.										

68K Integrated Communications Processors

Device No.	Package	Speeds	Rev	Device Name	Temp** (-40 to +85°C)	SOQ	MPQ	POQ	Brick	Description
MC68302 MC68302V	132-Lead RC 132-Lead FC 144-Lead PV 144-Lead PV	16, 20, 25 16, 20, 25 16, 20, 25, 33 16 @ 3.3V	C C C C	Integrated Multiprotocol Processor (IMP)	CRC16, 20 CFC16, 20 CPV16 CPV16V	0 0 0 0	14 36 60 60	14 144 300 300	 180 300 300	68000 core with three high-performance multiprotocol serial channels also on-chip DMA, RAM, timers, I/O, chip select, and wait state interrupt controller.
						For FC, PV sample order—SPAK302FCXXC, SPAK302PVXXC				
MC68EN302	144-Lead PV	20, 25	B	Integrated Multiprotocol Processor with Ethernet Controller	CPV20	0	60	300	300	Full 68302, plus separate IEEC 802.3 ethernet MAC channel and full DRAM controller
						For PV sample order—KMC68EN302PV25B				
XC68LC302 XC68LC302V	100-Lead PU	16, 20, 25 @ 5V 16, 20 @ 3.3V	B B	Low-Cost Integrated Multiprotocol Processor	CPU16, 20 CPU16V	0	84	420	420	Static EC000 Core Processor with two high-performance multiprotocol serial channels; also on-chip DMA, RAM, timers, I/O, chip selects, and wait state interrupt controller.
						For PU sample order—SPAKLC302PUXXB				
MC68QH302	144-Lead PV	16, 20, 25	C	Quad-HDLC Integrated Multiprotocol Processor		0	60	300	300	68302 derivative with support for up to four HDLC transparent channels. Pin compatible with 68302.
						For PV sample order---SPAKQH302PVXXC				
MC68360 MC68360V MC68EN360 MC68EN360V	240-Lead EM 357-Lead ZP 241-Lead RC 240-Lead EM 357-Lead ZP 240-Lead EM 357-Lead ZP 241-Lead RC 240-Lead EM 357-Lead ZP	25,33 @ 5.0V 25 @ 3.3V 25, 33 @ 5.0V 25 @ 3.3V	K K K L L K K K L L	QUICC™ QUad Integrated Communications Controller	CEM25 CZP25 CRC25 CEM25 CZP25 CRC25	0 0 0 0 0 0 0 0 0 0	24 44 10 24 44 24 44 10 24 44	120 220 10 120 220 120 220 10 120 220		CPU32 + core with System Integration Module (SIM) and four high-performance SCCs support numerous protocols. Two SCCs support Ethernet on "EN" version.
						For EM sample order—SPAK360EMXXK, SPAKEN360EMXXK, SPAK360EM25VL, SPAKEN360EM25VL For ZP sample order—SPAK360ZPXXK, SPAKEN360ZPXXK, SPAK360ZP25VL, SPAKEN360ZP25VL				
MC68MH360 MC68MH360V	240-Lead EM 357-Lead ZP 241-Lead RC 240-Lead EM 357-Lead ZP	25,33@5.0V 25@3.3V	K K K L L	Multichannel HDLC Controller	CEM25 CZP25 CRC25	0 0 0 0 0	24 44 10 24 44	120 220 10 120 220		One-chip integrated microprocessor and peripheral combination with four SCCs, two serial management controllers (SMCs) and one serial peripheral interface (SPI).
						For MH sample order—SPAKMH360EMXXK, SPAKMH360EMXXVL, SPAKMH360RLXXK, SPAKMH360ZPXXK, SPAKMH360ZPXXVL				
MC68606	84-Lead FN	12, 16	C		CFN12, 16	1	1	15		Implements CCITT Q.920/Q.921 link access procedure (LAPB) specified at ISO level 2 for both signaling and data applications in an ISDN.
MC68824	84-Lead FN	10, 12, 16	H	Token Bus Controller (TBC)		1	1	15		Implements IEEE 802.4 Token Bus Media Access Control which GM MAP specifies in layer 2. Manages access to media, fault recovery, and frame formatting. Runs at speeds down to 10 Kb/s.
Note: **Extended temperature devices with minimum order requirements. All package/speed combinations may not be valid - consult factory to verify.										

ColdFire™ Processors

Device No.	Package	Speeds	Rev	Device Name	Temp** (-40 to +85°C)**	SOQ	MPQ	POQ	BRICK	Description
MCF5102	144-Lead PV	20, 25, 33, 40	B	Embedded 68K/ColdFire MPU		0	60	240		ColdFire microprocessor designed for cost-sensitive embedded control applications. In addition to executing ColdFire code, this first family member is designed with additional capabilities that allow it to execute existing M680x0 code. Processor includes on-chip instruction/data caches (2K/1K respectively).
						For PV sample order—SPAK5102PVXXB				
MCF5202	100-Lead PU	16, 25, 33	B	Embedded 68K/ColdFire MPU	CPU25B	0	90	420		ColdFire microprocessor designed for cost-sensitive embedded control applications. This member features a 2K unified cache.
						For PU sample order—SPAK5202PUXXA				
MCF5204	100-Lead PU	16, 25, 33	B	Embedded Integrated 68K/ColdFire MPU	CPU25B	0	90	84		ColdFire microprocessor designed for cost-sensitive embedded control applications with UART, 2 timers.
						For PU sample order—SPAK5204PUXXA				
MCF5206	160-Lead FT	16, 25, 33		Embedded Integrated 68K/ColdFire MPU	CFT16 CFT25	0	24	120		ColdFire microprocessor designed for cost-sensitive embedded control applications with UART, 2 timers, DRAM controller.
						For FT sample order—SPAK5206FTXX				
XCF5206e	160-Lead FT	40, 54		Embedded Integrated 68K/ColdFire MPU	CFT40	24	24	120		Enhanced, pin-compatible version of 5206 with larger caches and SRAM, 2 UARTs, 2 timers, DMA, MAC, HW Divide. 3.3V with 5V-tolerant I/O.
						For sample order - SPAK5206EFTXX, SPAK5206ECFT40				
XCF5307	208-Lead FT	66, 90	B	Embedded Integrated 68K/ColdFire MPU	CFT66	0	90	120		ColdFire Version 3 microprocessor with Multiply-Accumulate (MAC) unit, SDRAM Controller, DMA Controller, 2 UARTs, and 2 timers.
						For FT sample order - SPAK5307FTXX				
*** Extended temperature devices with minimum order requirements.*										

Communications Application-Specific Standard Products (CASSP)

ADSL — CopperGold™ Asymmetric Digital Subscriber Line System

Device	Description	Leads-Package	Samples	Production	Document #
MC145650	ADSL Transceiver	144-Lead CQFP,144-Lead BGA	Now	Now	Note 1
MC145660	ADSL Transceiver with Integrated ATM TC	193-Lead BGA	1Q 2000	2Q 2000	Note 1
MS143462SK	V.90/G.lite Modem Chipset	N/A	Now	Now	Note 1

Note 1. For details or preliminary document, contact your NCSD regional marketing representative. Note 2. Information is available from the CTAS website at http://www.motorola.com/ctasd

Analog Modem

Chipset	Description	Leads-Package	Samples	Production	Document #
MS143450SK	External/Embedded Modem	N/A	Now	Now	MS143450SKPP/D
MS143455SK	PCI Controller-less Modem	N/A	Now	Now	MS143455SKPP/D

Calling Line I.D.

Device	Description	Leads-Package	Samples	Production	Document #
MC14LC5447	Calling Line I.D. Receiver with Ring Detector	16-Lead PDIP,16-Lead SOG	Now	Now	MC14LC5447/D

DTMF Transceiver

Device	Description	Leads-Package	Samples	Production	Document #
MC145740	DTMF Transceiver	20-SOEIAJ	Now	Now	MC145740/D

Interface

Device	Description	Leads-Package	Samples	Production	Document #
MC145403	EIA-232/V.28 CMOS Driver/Receiver, 3 x 5	20-Lead PDIP, 20-Lead SOG	Now	Now	MC145403/D
MC145404	EIA-232/V.28 CMOS Driver/Receiver, 4 x 4	20-Lead PDIP, 20-Lead SOG	Now	Now	MC145403/D
MC145405	EIA-232/V.28 CMOS Driver/Receiver, 5 x 3	20-Lead PDIP, 20-Lead SOG	Now	Now	MC145403/D
MC145406	EIA-232/V.28 CMOS Driver/Receiver, 3 x 3	16-Lead PDIP, 16-Lead SOG, 16-Lead SSOP	Now	Now	MC145406/D
MC145407	EIA-232/V.28 CMOS Driver/Receiver, 5 V Only, 3 x 3	20-Lead PDIP, 20-Lead SOG	Now	Now	MC145407/D
MC145408	EIA-232/V.28 CMOS Driver/Receiver, 5 x 5	24-Lead SOG	Now	Now	MC145403/D
MC145583	3.3 V – 5.0 V EIA-232/V.28 CMOS Transceiver, 3 x 5	28-Lead SSOP	Now	Now	MC145583/D

ISDN

Device	Description	Leads-Package	Samples	Production	Document #
MC14LC5472	ISDN U-Interface Transceiver (NRFND)	68-Lead CQFP, 68-Lead PQFP	Now	Now	MC145472/D
MC145572	ISDN U-Interface Transceiver II	44-Lead PLCC, 44-Lead TQFP	Now	Now	MC145572/D
MC145572A	ISDN U-Interface Transceiver II with Micro Interruptions Feature	44-Lead PLCC, 44-Lead TQFP	Now	Now	Note 1
MC145574A	ISDN S/T-Interface Transceiver II	28-Lead SOG, 32-Lead TQFP	Now	Now	MC145574/D
MC145576	ISDN Single-Chip NT1	44-Lead TQFP	Now	Now	Note 2

Note 1. For details or preliminary document, contact your NCSD regional marketing representative. Note 2. Information is available from the CTAS website at http://www.motorola.com/ctasd

Modem Functions

Device	Description	Leads-Package	Samples	Production	Document #
MC145442	300-Baud CCITT V.21 Single-Chip Modem	20-Lead PDIP, 20-Lead SOG	Now	Now	MC145442/D
MC145443	300-Baud Bell 103 Single-Chip Modem	20-Lead PDIP, 20-Lead SOG	Now	Now	MC145442/D
MC145744	Dual Mode 300-/1200-Baud V.21/V.23 Single-Chip Modem with DTMF Transceiver	28-Lead SOG	Now	Now	Note 1
MC145745		28-Lead SOG	Now	Now	MC145745/D
MC145746	Low-Voltage Dual Mode 300-/1200-Baud V.21/V.23 Single-Chip Modem with DTMF Transceiver	44-Lead LQFP	Now	Now	Note 1

Note 1. For details or preliminary document, contact your NCSD regional marketing representative. Note 2. Information is available from the CTAS website at http://www.motorola.com/ctasd

Multi-Channel Infrastructure Modems (MIMs)

Device	Description	Leads-Package	Samples	Production	Document #
MS143457SK	Multichannel Infrastructure Modem	N/A	Call Marc Davidson (N. America) at 512-934-7676 OR Bruce Given (Europe) at 44 1355 565 226.		Note 1

Note 1. For details or preliminary document, contact your NCSD regional marketing representative. Note 2. Information is available from the CTAS website at http://www.motorola.com/ctasd

Universal Digital Loop Transceivers

Device	Description	Leads-Package	Samples	Production	Document #
MC145421	Provides synchronous full-duplex 160 Kbps voice and data communication in a 2B+2D format for ISDN compatibility on a single twisted pair up to 1 km. Single 5 V power supply, protocol independent.	24-Lead PDIP, 24-Lead SOG	Now	Now	MC145421/D
MC145425			Now	Now	MC145421/D
MC145422	Provides synchronous full-duplex 80 Kbps voice and data communication in a 1B+1D format on a single twisted pair up to 2 km. Single 5 V power supply, protocol independent.	22-Lead PDIP, 24-Lead SOG	Now	Now	MC145422/D
MC145426			Now	Now	MC145422/D

Voice and Data Coding

Device	Description	Leads-Package	Samples	Production	Document #
MC143416	Dual 16-Bit Linear Codec-Filter	44-Lead TQFP	Now	Now	MC143416/D
MC14LC5480	5 V PCM Codec-Filter	20-Lead PDIP, 20-Lead SOG, 20-Lead SSOP, 20-Lead TSSOP	Now	Now	MC14LC5480/D
MC145481	3 V PCM Codec-Filter	20-Lead SOG, 20-Lead SSOP, 20-Lead TSSOP	Now	Now	MC145481/D
MC145482	5 V Linear Codec-Filter		Now	Now	MC145482/D
MC145483	3 V Linear Codec-Filter		Now	Now	MC145483/D
MC145484	5 V PCM Codec-Filter		Now	Now	MC145484/D
MC145502	PCM Codec-Filter	28-Lead PQCC, 22-Lead PDIP	Now	Now	MC145500/D
MC145503	PCM Codec-Filter	16-Lead SOG, 16-Lead PDIP	Now	Now	MC145500/D
MC145505					MC145500/D
MC145506	PCM Mono-Circuit	16-Lead PDIP	Now	Now	Note 1
MC14LC5540	3 V ADPCM (MC145540 Replacement)	28-Lead PDIP, 28-Lead SOG, 32-Lead QFP	Now	Now	Note 1 (see MC145540/D)
MC145554	PCM Codec-Filter (TP3054 Compatible)	16-Lead SOG, 16-Lead PDIP	Now	Now	MC145554/D
MC145557	PCM Codec-Filter (TP3057 Compatible)	16-Lead SOG, 16-Lead PDIP	Now	Now	MC145554/D
MC145564	PCM Codec-Filter (TP3064 Compatible)	20-Lead SOG, 20-Lead PDIP	Now	Now	MC145554/D
MC145567	PCM Codec-Filter (TP3067 Compatible)	20-Lead SOG, 20-Lead PDIP	Now	Now	MC145554/D
MS140131KT	Short Loop Dual PCM Codec-Filter/SLIC Chipset with GCI	N/A	Now	Now	MS140131KT/D
MS140132KT	Short Loop Dual PCM Codec-Filter/SLIC Chipset with SPI	N/A	1Q 2000	2Q 2000	Note 1

Note 1. For details or preliminary document, contact your NCSD regional marketing representative. Note 2. Information is available from the CTAS website at http://www.motorola.com/ctasd

Communications Application-Specific Standard Products (CASSP) System Development Tools

Device	Description	Key Device	Production	Document #
MC143450RDK1	External/Embedded Modem Reference Design Kit (North America)	MS143450SK	Now	Note 2
MC143450RDK2	External/Embedded Modem Reference Design Kit (Europe)	MS143450SK	Now	Note 2
MC143455RDK1	PCI Controller-less Modem Reference Design Kit (North America)	MS143455SK	Now	Note 2
MC143455RDK2	PCI Controller-less Modem Reference Design Kit (Europe)	MS143455SK	Now	Note 2
MC143462RDK	CopperGold Lite Reference Design Kit	MC143462SK	Now	Note 1
MC145460EVK	Calling Line I.D. Receiver Evaluation Kit	MC14LC5447	Now	MC145460EVK/D
MC14LC5480EVK	PCM Codec-Filter Evaluation Kit	MC14LC5480, MC145481, MC145482, MC145483, MC145484	Now	MC14LC5480EVK/D
MC145537EVK	ADPCM Codec Evaluation Kit	MC14LC5540	Now	MC145537EVK/D
MC145572EVK	ISDN U-Interface Transceiver Evaluation Kit	MC145572	Now	Note 1
MC145574EVK	ISDN S/T-Interface Transceiver Evaluation Kit	MC145574	Now	Note 1
MC145576EVK	ISDN Single-Chip NT1 Evaluation Kit	MC145576	Now	Note 1
MC145576DRV	Driving Board for the MC145576EVK for Smart NT1 Evaluation	MC145576	Now	Note 1
MC145650EVS	ADSL Evaluation System	MC145650	Now	Note 1
MC145650RDK5	ADSL System Developer's Kit	MC145650	Now	Note 1
MC145650CSW	ADSL Control Software	MC145650	Now	Note 1
Hipster™	Hipster Reference Design for SOHO Router	MC145572, MC145574, MPC850DH	Now	Note 1

Note 1. For details or preliminary document, contact your NCSD regional marketing representative. Note 2. Information is available from the CTAS website at http://www.motorola.com/ctasd

Timing Solutions

Advanced Clock Driver Products

Device No.	Description	Output Level	Max. Output to Output Skew*	Max. Output (MHz)	Q Output	Q' Output	Packages	Status
MC88915FN55	Low Skew CMOS PLL Clock Driver	CMOS	0.5	13.75, 27.5, 55	7	1	28 PLCC	NOW
MC88915FN70	Low Skew CMOS PLL Clock Driver	CMOS	0.5	17.5, 35, 70	7	1	28 PLCC	NOW
MC88915T	Low Skew CMOS PLL Clock Drivers, 3-State	CMOS	0.5	33, 66, 133, 160	7	1	28 PLCC	NOW
MC88916	Low Skew CMOS PLL Clock Driver With Processor Reset	CMOS	0.5	20, 40, 80	5	1	20 SOIC	NOW
MC88920	Low Skew CMOS PLL Clock Driver With Power Down/Up	CMOS	0.5	12.5, 25, 50	5	1	20 SOIC	NOW
MC88921	Low Skew CMOS PLL Clock Driver With Power Down/Up	CMOS	0.5	80	2	1	20 SOIC	NOW
MC88LV915T	Low Voltage Low Skew CMOS PLL Clock Driver 3-State	LVCMOS	0.5	100	7	1	28 PLCC	NOW
MC88LV926	Low Skew CMOS PLL 68060 Clock Driver	LVCMOS	0.5	66	4	1	20 SOIC	NOW
MPC905	1:6 PCI Clock Generator/Fanout Buffer	LVCMOS	0.4	66	6	—	16 SOIC	NOW
MPC930/931	Low Voltage PLL Clock Driver	LVCMOS	0.5	125	5	—	32 LQFP	NOW
MPC932	Low Voltage PLL Clock Driver	LVCMOS	0.6	120	6	—	32 LQFP	NOW
MPC940L	Low Voltage 1:18 Clock Distribution Chip	LVCMOS	0.25	200	18	—	32 LQFP	NOW
MPC941	Low Voltage 1:27 Clock Distribution Chip	LVCMOS	0.25	200	27	—	48 LQFP	2Q00
MPC942C	Low Voltage Fan Out Buffer	LVCMOS	0.25	250 ps	18	—	52 QFP	NOW
MPC942P	Low Voltage Fan Out Buffer	LVCMOS	0.25	250 ps	18	—	52 QFP	NOW
MPC947	Low Voltage 1:9 Clock Distribution Chip	LVCMOS	0.5	100	9	—	32 LQFP	NOW
MPC948	Low Voltage 1:12 PECL To CMOS Clock Driver	LVCMOS	0.35	150	12	—	32 LQFP	NOW
MPC948L	Low Voltage 1:12 PECL To CMOS Clock Driver	LVCMOS	0.35	150	12	—	32 LQFP	NOW
MPC949	Low Voltage 1:15 PECL To CMOS Clock Driver	LVCMOS	0.35	150	15	—	52 LQFP	NOW
MPC950/951	Low Voltage PLL Clock Driver	LVCMOS	0.35	200	9	—	32 TQFP	NOW
MPC952	Low Voltage PLL Clock Driver	LVCMOS	0.35	180	11	—	32 TQFP	NOW
MPC953	Low Skew PLL Zero Delay Buffer	LVCMOS	0.15	120	9	—	32 LQFP	NOW
MPC954	Low Voltage CMOS Zero Delay Buffer	LVCMOS	0.2	120	11	—	24 TSSOP	1Q00
MPC958	Low Skew PLL Zero Delay Buffer	LVCMOS	0.2	200	11	—	32 QFP	1Q00
MPC961C	Low Skew CMOS Zero Delay Buffer	LVCMOS	0.15	200	18	—	32 QFP	1Q00
MPC961P	Low Skew CMOS Zero Delay Buffer	LVCMOS	0.15	200	18	—	32 QFP	1Q00
MPC972/973	Low Voltage PLL Clock Driver	LVCMOS	0.35	180	14	—	52 TQFP	NOW
MPC974	Low Voltage PLL Clock Driver	LVCMOS	0.35	125	15	—	52 LQFP	NOW
MPC980	Dual 3.3V Clock Generator	LVCMOS	0.5	66	10	—	52 LQFP	NOW
MPC990/991	Low Voltage PLL Clock Driver	ECL/PECL	0.1	400	diff 14/pairs	—	52 TQFP	NOW
MPC992	Low Voltage PECL PLL Clock Driver	ECL/PECL	0.1	100	diff 7/pairs	—	32 LQFP	NOW
MPC993	Dynamic Switch PLL Clock Driver	LVPECL	.10	240	diff 5/pairs	—	32 TQFP	NOW
MPC9109	1:18 LVCMOS Fanout Buffer	LVCMOS	.20	100	18	—	32 TQFP	NOW
MPC9140	1:18 LVCMOS Fanout Buffer — Bx Intel Desktop	LVCMOS	.25	100	18	—	48 SSOP	NOW
MC12429	High Frequency PLL Clock Generator	LVPECL	—	400	diff 1/pair	—	28 PLCC	NOW
MC12430	High Frequency PLL Clock Generator	LVPECL	—	800	diff 1/pair	—	28 PLCC	NOW
MC12439	High Frequency PLL Clock Generator	LVPECL	—	800	diff 1/pair	—	28 PLCC	NOW
PC100EP221	Low Voltage 1:20 Diff ECL/PECL Clock Driver	LVPECL	0.05	1500	diff 20/pairs	—	52 LQFP	1Q00
PC100EP223	Low Voltage 1:22 Diff PECL/HSTL Clock Driver	LVPECL	0.05	250	diff 22/pairs	—	64 LQFP	1Q00
XC100EP111	Low Voltage 1:10 Diff ECL/PECL/HSTL Clock Driver	LVPECL	0.035	1500	diff 10/pairs	—	32 LQFP	1Q00
XC100EP210	Low Voltage 1:5 Diff ECL/PECL Clock Driver	LVPECL	0.035	1500	diff 5/pairs	—	32 LQFP	1Q00

Network Memory Products

BurstRAMs (Synchronous)

Category	Organization	V_{DD}	Device No.	Pin Count	Package	Speeds	Prod. Status	Description
8M	512K x 18	3.3V	MCM63P919	100 119	(TQ) TQFP (ZP) PBGA	225 / 200 / 166 MHz	1Q00	2.5 V/3.3 V I/O pipelined
			MCM63F919	100 119	(TQ) TQFP (ZP) PBGA	7.0 / 8.0 / 8.5 ns	1Q00	2.5 V/3.3V I/O flow-through
	256K x 36	3.3V	MCM63P837	100 119	(TQ) TQFP (ZP) PBGA	225 / 200 / 166 MHz	1Q00	2.5 V/3.3 V I/O pipelined
			MCM63F837	100 119	(TQ) TQFP (ZP) PBGA	7.0 / 8.0 / 8.5 ns	1Q00	2.5 V/3.3 V I/O flow-through
4M	256K x 18	3.3V	MCM69P819	100 119	(TQ) TQFP (ZP) PBGA	3.5 / 3.8 / 4 ns	Now	2.5 V/3.3 V I/O pipelined. Being replaced by MCM63P819K.
			MCM69F819	100 119	(TQ) TQFP (ZP) PBGA	7.5 / 8.0 / 8.5 / 11.0 ns	Now	2.5 V/3.3 V I/O flow–through. Being replaced by MCM63F819K.
			MCM63P819K	100 119	(TQ) TQFP (ZP) PBGA	166 / 150 / 133 MHz	1Q00	2.5V/3.3V I/O pipelined Replaces MCM69P819.
			MCM63F819K	100 119	(TQ) TQFP (ZP) PBGA	8.5 / 9.0 / 11.0 ns	1Q00	2.5 V/3.3 V I/O flow–through. Replaces MCM69F819.
			MCM63P819A	100 119	(TQ) TQFP (ZP) PBGA	250 / 225 / 200 MHz	1Q00	2.5 V/3.3 V I/O pipelined for higher performance applications.
			MCM63F819A	100 119	(TQ) TQFP (ZP) PBGA	6.5 / 7.0 / 8.0 ns	1Q00	2.5 V/3.3 V I/O flow–through for higher performance applications.
		2.5V	MCM64P819	100 119	(TQ) TQFP (ZP) PBGA	250 / 225 / 200 MHz	1Q00	2.5 V I/O pipelined for high speed low-power applications.
			MCM64F819	100 119	(TQ) TQFP (ZP) PBGA	6.5 / 7.0 / 8.0 ns	1Q00	2.5 V I/O flow–through for high speed low-power applications.
		1.8V	MCM65P819	100 119	(TQ) TQFP (ZP) PBGA	250 / 225 / 200 MHz	1Q00	1.8 V I/O or pipelined for high-speed low-power applications.
			MCM65F819	100 119	(TQ) TQFP (ZP) PBGA	6.5 / 7.0 / 8.0 ns	1Q00	1.8 V I/O flow–through for high speed low-power applications.
	128K x 36	3.3V	MCM69P737	100 119	(TQ) TQFP (ZP) PBGA	3.0 / 3.2 / 3.5 / 3.8 / 4.0 ns	Now	2.5 V/3.3 V I/O pipelined. Being replaced by MCM63P737K.
			MCM69F737	100 119	(TQ) TQFP (ZP) PBGA	7.5 / 8.0 / 8.5 / 11 ns	Now	2.5 V/3.3 V I/O flow–through. Being replaced by MCM63F737K.
			MCM63P737K	100 119	(TQ) TQFP (ZP) PBGA	166 / 150 / 133 MHz	1Q00	2.5 V/3.3 V I/O pipelined. Replaces MCM69P737.
			MCM63F737K	100 119	(TQ) TQFP (ZP) PBGA	8.5 / 9.0 / 11.0 ns	1Q00	2.5 V/3.3 V I/O flow–through. Replaces MCM69F737.
			MCM63P737A	100 119	(TQ) TQFP (ZP) PBGA	250 / 225 / 200 MHz	1Q00	2.5 V/3.3V I/O pipelined for higher performance applications.
			MCM63F737A	100 119	(TQ) TQFP (ZP) PBGA	6.5 / 7.0 / 8.0 ns	1Q00	2.5 V/3.3V I/O flow–through for higher performance applications.
		2.5V	MCM64P737	100 119	(TQ) TQFP (ZP) PBGA	250 / 225 / 200 MHz	1Q00	2.5 V I/O pipelined for high speed low power applications.
			MCM64F737	100 119	(TQ) TQFP (ZP) PBGA	6.5 / 7.0 / 8.0 ns	1Q00	2.5 V I/O flow–through for high speed low power applications.
		1.8V	MCM65P737	100 119	(TQ) TQFP (ZP) PBGA	250 / 225 / 200 MHz	1Q00	1.8 V I/O pipelined for high speed low-power applications.
			MCM65F737	100 119	(TQ) TQFP (ZP) PBGA	6.5 / 7.0 / 8.0 ns	1Q00	1.8 V I/O flow–through for high speed low power applications.
	128K x 32	3.3V	MCM63P733A	100	(TQ) TQFP	150 / 133 / 117 / 100 / 90 MHz	Now	2.5 V/3.3V I/O pipelined. Being replaced by MCM63F733K.
			MCM63F733A	100	(TQ) TQFP	8.5 / 9.0 / 10.0 / 11.0 ns	Now	2.5 V/3.3V I/O flow–through. Being replaced by MCM63P733K.
			MCM63P733K	100	(TQ) TQFP	150 / 133 / 117 / 100 / 90 MHz	1Q00	2.5 V/3.3V I/O pipelined. Replaces MCM63P733A.
			MCM63F733K	100	(TQ) TQFP	8.5 / 9.0 / 10.0 / 11.0 ns	1Q00	2.5 V/3.3V I/O flow–through. Replaces MCM63P733A.
			MCM63P733B	100	(TQ) TQFP	250 / 225 / 200 MHz	1Q00	2.5 V/3.3V I/O pipelined for higher performance applications.
			MCM63F733B	100	(TQ) TQFP	6.5 / 7.0 / 8.0 ns	1Q00	2.5 V/3.3V I/O flow–through for higher performance applications.
		2.5V	MCM64P733	100	(TQ) TQFP	250 / 225 / 200 MHz	1Q00	2.5 V I/O pipelined for high-speed, low-power applications.
			MCM64F733	100	(TQ) TQFP	6.5 / 7.0 / 8.0 ns	1Q00	2.5 V I/O flow–through for high-speed, low-power applications.
		1.8V	MCM65P733	100	(TQ) TQFP	250 / 225 / 200 MHz	1Q00	1.8 V I/O pipelined for high-speed, low-power applications.
			MCM65F733	100	(TQ) TQFP	6.5 / 7.0 / 8.0 ns	1Q00	1.8 V I/O flow–through for high-speed, low power applications.

BurstRAMs (Synchronous) (Continued)

Category	Organization	V_{DD}	Device No.	Pin Count	Package	Speeds	Prod. Status	Description
1M	64K x 18	3.3V	MCM69F618C	100	(TQ) TQFP	7.5 / 8.0 / 8.5 / 9.0 /10.0 / 12.0 ns	Now	Flow–through BurstRAM, 5 V tolerant on all pins.
			MCM69P618C	100	(TQ) TQFP	4.0 / 4.5 / 5.0 / 6.0 / 7.0 ns	Now	Pipelined BurstRAM, 5 V tolerant on all pins.
		5V	MCM67B618A	52	(FN) PLCC	8.5 / 9.0 / 10.0 / 12.0 ns	Now	Not recommended for new designs. Use MCM67B618B.
			MCM67B618B	52	(FN) PLCC	9.0 ns	Now	Flow–through BurstRAM for Pentium™, MIPS.
			MCM67M618A	52	(FN) PLCC	9.0 / 10.0 / 12.0 ns	Now	Not recommended for new designs. Use MCM67M618B.
			MCM67M618B	52	(FN) PLCC	9.0 ns	Now	Flow–through BurstRAM for PowerPC™.
	32K x 36	3.3V	MCM69F536C	100	(TQ) TQFP	7.5 / 8.0 / 8.5 / 9.0 /10.0 / 12.0 ns	Now	Flow–through BurstRAM, 5 V tolerant on all pins.
			MCM69P536C	100	(TQ) TQFP	4.0 / 4.5 / 5.0 / 6.0 / 7.0 ns	Now	Pipelined BurstRAM, 5 V tolerant on all pins.

ZBT® (Zero Bus Turnaround®) RAMs (Synchronous)

Category	Organization	V_{DD}	Device No.	Pin Count	Package	Speeds	Prod. Status	Description
8M	512K x 18	3.3V	MCM63Z918	100 119	(TQ) TQFP (ZP) PBGA	7.0 / 8.0 / 8.5 ns Latency	1Q00	2.5V/3.3V I/O. Pipelined or flow–through with back–to–back read/write write/read cycles. Sampling 4Q99.
			MCM63Z916	100 119	(TQ) TQFP (ZP) PBGA	10.0 / 11.0 / 15.0 ns Latency	1Q00	2.5V/3.3V I/O. Pipelined or flow–through with back–to–back read/write write/read cycles. Sampling 4Q99.
		2.5V	MCM64Z918	100 119	(TQ) TQFP (ZP) PBGA	7.0 / 8.0 / 8.5 ns Latency	1Q00	Pipelined or flow–through with back–to–back read/write write/read cycles. Sampling 4Q99.
			MCM64Z916	100 119	(TQ) TQFP (ZP) PBGA	10.0 / 11.0 / 15.0 ns Latency	1Q00	Pipelined or flow–through with back–to–back read/write write/read cycles. Sampling 4Q99.
	256K x 36	3.3V	MCM63Z836	100 119	(TQ) TQFP (ZP) PBGA	7.0 / 8.0 / 8.5 ns Latency	1Q00	2.5V/3.3V I/O. Pipelined or flow–through with back–to–back read/write write/read cycles. Sampling 4Q99.
			MCM63Z834	100 119	(TQ) TQFP (ZP) PBGA	10.0 / 11.0 / 15.0 ns Latency	1Q00	2.5V/3.3V I/O. Pipelined or flow–through with back–to–back read/write write/read cycles. Sampling 4Q99.
		2.5V	MCM64Z836	100 119	(TQ) TQFP (ZP) PBGA	7.0 / 8.0 / 8.5 ns Latency	1Q00	Pipelined or flow–through with back–to–back read/write write/read cycles. Sampling 4Q99.
			MCM64Z834	100 119	(TQ) TQFP (ZP) PBGA	10.0 / 11.0 / 15.0 ns Latency	1Q00	Pipelined or flow–through with back–to–back read/write write/read cycles. Sampling 4Q99.
4M	256K x 18	3.3V	MCM63Z818	100	(TQ) TQFP	143 / 133 / 100 MHz	Now	Pipelined with back–to–back read/write write/read cycles. Being replaced by MCM63Z818K.
			MCM63Z819	100	(TQ) TQFP	10.0 / 11.0 / 15.0 ns	Now	Flow–through with back–to–back read/write write/read cycles. Being replaced by MCM63Z819K.
			MCM63Z818K	100	(TQ) TQFP	143 / 133 / 100 MHz	1Q00	Pipelined with back–to–back read/write write/read cycles. Replaces MCM63Z818.
			MCM63Z819K	100	(TQ) TQFP	10.0 / 11.0 / 15.0 ns	1Q00	Flow–through with back–to–back read/write write/read cycles. Replaces MCM63Z819.
		2.5V	MCM64Z818K	100	(TQ) TQFP	143 / 133 / 100 MHz	1Q00	Pipelined with back–to–back read/write write/read cycles. For low power applications.
			MCM64Z819K	100	(TQ) TQFP	10.0 / 11.0 / 15.0 ns	1Q00	Flow–through with back–to–back read/write write/read cycles. For low power applications.
	128K x 36	3.3V	MCM63Z736	100	(TQ) TQFP	143 / 133 / 100 MHz	Now	Pipelined with back–to–back read/write write/read cycles. Being replaced by MCM63Z736K.
			MCM63Z737	100	(TQ) TQFP	10.0 / 11.0 / 15.0 ns	Now	Flow–through with back–to–back read/write write/read cycles. Being replaced by MCM63Z737K.
			MCM63Z736K	100	(TQ) TQFP	143 / 133 / 100 MHz	1Q00	Pipelined with back–to–back read/write write/read cycles. Replaces MCM63Z736.
			MCM63Z737K	100	(TQ) TQFP	10.0 / 11.0 / 15.0 ns	1Q00	Flow–through with back–to–back read/write write/read cycles. Replaces MCM63Z737.
		2.5V	MCM64Z736K	100	(TQ) TQFP	143 / 133 / 100 MHz	1Q00	Pipelined with back–to–back read/write write/read cycles. For low power applications.
			MCM64Z737K	100	(TQ) TQFP	10.0 / 11.0 / 15.0 ns	1Q00	Flow–through with back–to–back read/write write/read cycles. For low pwer applications.

ZBT® (Zero Bus Turnaround®) RAMs (Synchronous) (Continued)

CAMs (Content Addressable Memory)

Category	Organization	V_{DD}	Device No.	Pin Count	Package	Speeds	Prod. Status	Description
CAMs	16K x 64	3.3V	MCM69C432	100	(TQ) TQFP	20 ns	Now	Content addressable memory for communication applications. 16K connections. 180 ns match time.
			MCM69C433	100	(TQ) TQFP	15 ns	Now	66 MHz for PowerQUICC II applications. 240 ns match time.
	4K x 64	3.3V	MCM69C232	100	(TQ) TQFP	20 ns	Now	Content addressable memory for communication applications. 4K connections. 160 ns match time.
			MCM69C233	100	(TQ) TQFP	15 ns	Now	66 MHz for PowerQUICC II applications. 210 ns match time.

Tag RAMs

Tag RAMs	64K x 18	3.3V	MCM69T618	100	(TQ) TQFP	5 ns	Now	100 MHz Data/Tag RAM. For MIPS R5000, Pentium Pro, and graphics accelerators applications. Not recommended for new designs.

Integrated Cache Solutions

Integrated Cache Solutions	32K x 72	3.3V	MPC2605	241	(ZP) PBGA	83 / 66 MHz	Now	Integrated L2 cache for PowerPC processors.One component for 256KB, two for 512KB, and four for 1MB L2 cache solution.

Separate and Dual I/O Devices

4M	512K x 9	5V	MCM67Q909	86	(ZP) PBGA	10.0 / 12.0 ns	Now	General synchronous separate I/O with write pass through. 3.3 V output levels. Not recommended for new designs.
	128K x 36	3.3V	MCM63D736	176	(TQ) TQFP	4 / 5 ns	1Q00	Dual address, Dual I/O NetRAM pipelined per port chip enable.
1M	128K x 9	5V	MCM67Q709A	86	(ZP) PBGA	10.0 ns	Now	General synchronous separate I/O with write pass through. 3.3 V output levels. Not recommended for new designs.
	32K x 36	3.3V	MCM69D536	176	(TQ) TQFP	6.0 / 8.0 ns	Now	Dual address, dual I/O. NetRAM.
	64K x 18	3.3V	MCM69D618	100	(TQ) TQFP	6.0 / 8.0 ns	Now	Dual address, dual I/O. NetRAM.

Asynchronous RAMs

Category	Organization	V_{DD}	Device No.	Pin Count	Package and Width in mils	Speeds	Prod. Status	Description
4M	512K x 8	3.3V	MCM6946	36 44	400 (YJ) SOJ (TS) TSOP	10.0 / 12.0 / 15.0 ns	Now	Not recommended for new designs. EOL status.
	256K x 16	3.3V	MCM6343	44	400 (YJ) SOJ (TS) TSOP	11.0 / 12.0 / 15.0 ns	Now	Not recommended for new designs. EOL status.
	1M x 4	3.3V	MCM6949	32	400 (YJ) SOJ	10.0 / 12.0 / 15.0 ns	Now	Not recommended for new designs. EOL status.
3M	128K x 24	3.3V	MCM6341	119	(ZP) PBGA	10.0 / 11.0 / 12.0 / 15.0 ns	Now	DSP applications for base stations and other communication applications. Industrial temperature available.
1M	64K x 18	5V	MCM67A618A	52	(FN) PLCC	10.0 / 12.0 / 15.0 ns	Now	Not recommended for new designs. Use MCM67A618B.
			MCM67A618B	52	(FN) PLCC	10 ns	Now	General asynchronous, latched address and data
	128K x 8	3.3V	MCM6926A	32	400 (WJ) SOJ	8.0 / 10.0 / 12.0 / 15.0 ns	Now	EOL Status – Last Purchase January 2000.
	256K x 4	3.3V	MCM6929A	32	400 (WJ) SOJ	8.0 / 10.0 / 12.0 / 15.0 ns	Now	EOL Status – Last Purchase January 2000.

End-of-Life Devices

Device	Last Buy	Last Ship	Replacement
PowerPC Processors			
XPC105	8/5/00	2/05/01	XPC107
KXPE603P XPE603P	7/30/00 7/30/00	1/30/01 1/30/01	MPC603R, MPC740 MPC603R, MPC740
KXPC603P XPC603P	7/30/00 7/30/00	1/30/01 1/30/01	MPC603R, MPC740 MPC603R, MPC740
XPC604R	1/21/00	7/21/00	MPC740, MPC750, MPC7400
MPC801	6/30/00	12/31/00	MPC823, MPC850, MPC860
68K Processors			
MC68020 (RP package) MC68EC020 (RP package) MC68030 (RP package) MC68EC030 (RP package)	12/31/00 12/31/00 12/31/00 12/31/00	6/30/01 6/30/01 6/30/01 6/30/01	MC68020 (RC package) MC68EC020 (FE package) MC68030 (RC package) MC68EC030 (FE package)
MC68349 MC68330 MC68330V	6/30/99 6/30/99 6/30/99	4/30/00 4/30/00 4/30/00	MCF5206e, MCF5307 MCF5206e, MCF5307 MCF5206e, MCF5307
Network Memory			
MCM6343 MCM6946 MCM6949 MCM6926A MCM6929A	12/07/00 9/14/00 9/14/00 1/30/00 1/30/00	6/07/01 3/14/01 3/14/01 7/30/00 7/30/00	N/A N/A N/A N/A N/A

Documentation

To download documentation for Motorola MPC/PowerPC 10x, 60x, 7xx, 7xxx, and 8240 CPUs:
http://motorola.com/SPS/PowerPC/teksupport/teklibrary/.

To download documentation for MPC8xx, MPC8xxx, and 68K integrated communications controllers:
http://motorola.com/SPS/RISC/netcomm/docs/pubs/.

To download documentation for 68K/ColdFire processors:
http://motorola.com/SPS/HPESD/prod/docframe/docs_frame.html.

To download documentation for Motorola timing solutions:
http://www.design-net.com/books/html/br1333_index.html.

For printed documentation for NSD and PCSD devices:
http://www.design-net.com/home2/lit_ord.html.

Development Tools

For information on third-party tools for PowerPC 1xx, 6xx and 7xx CPUs:
http://motorola.com/PowerPC/3rdparty/.

To download freeware tools for MPC8xx, MPC8xxx, and 68K integrated communications controllers, point your browser to:
http://motorola.com/SPS/RISC/netcomm/tools/.

For information on third-party tools for 68K/ColdFire processors:
http://motorola.com/SPS/HPESD/devprg/frames/mem_frame.html.

World Wide Web

Motorola PowerPC home page:
http://motorola.com/PowerPC/

MPC/PowerPC 10x, 60x, 7xx, 7xxx, and 8240 CPUs:
http://motorola.com/PowerPC/products/semiconductor/chips.html

AltiVec™ Technology
http://motorola.com/AltiVec/

Networking & Communications (NetComm) home page:
http://motorola.com/netcomm/

MPC801, MPC821, MPC823, MPC850, MPC860, MPC8260 and 68K communications controllers:
http://www.mot.com/SPS/RISC/netcomm/prod/index.html

68K/ColdFire Processors home page:
http://motorola.com/ColdFire/

Motorola Communication Transmission & Access Systems home page:
http://motorola.com/ctasd/

Motorola timing solutions home page:
http://www.design-net.com/logic/

Motorola FSRAM products home page:
http://motorola.com/fastrams/

SPS Customer Response Center:
http://www.design-net.com/home2/cust_serv.html

General product information on other devices:
http://motorola.com/SPS/General/chips.html

Information on other Motorola products:
http://motorola.com/General/prodport.html

Comments on other Motorola products:
http://motorola.com/cgi-bin/web-comments2

Microprocessor Part Number Schemes

PowerPC 1xx, 6xx & 7xx Processor Part Numbering Scheme

MPC | 603 | R | RX | 300 | L | C

Product Code
PPC Sample
XPC XC qualified
MPC Qualified
PPE EC-Sample
XPE XC qualified EC CPU
MPE Qualified EC CPU

100, 600, or 700 Series Device
(106, 107, 603, 740, 750, 7400)

Part/Module Modifier
A 106/107/740/750 Alpha (original)
E 603 Enhanced Performance
P 740/750 Enhanced and Lower Voltage
R 603e in HiP3 process
(Not used for 7400)

Package
(see page 2)

Frequency
2-3 digits

Application Modifier
Bus Ratio
C 2:1 (106 only)
D 5:2 (106 only)
L Full spec all modes
Temp/Spec
N 65 °C, 2.1 V
P 65 °C, 2.05 V (750); 2.15 V (7400)
R 105°, 2.05 V
T ext. temp. (-40° to 105° Tj)

Revision

MPC8xx PowerPC Processor Part Numbering Scheme

MPC | 860 | EN | C | ZP | 66 | L

Product Code
PPC Prototype Sample
KXPC Sample Pack (2-10)
KMPC Sample Pack (2-10)
XPC Engineering Production
MPC Qualified

800 Series Device
(801, 850, 860)

Part/Module Modifier
DC Dual Channel (Enet on SCC1)
DE Dual Channel (w/Enet)
DH Dual Channel (w/Enet, Multi-HDLC)
None Four Channel (no Enet)
EN Four Channel (w/Enet)
MH Four Channel (w/Enet, Multi-HDLC)
SC Single Ethernet
SR Four Channel (w/Enet, Multi-HDLC, ATM)
T Four Channel (10/100, Multi-HDLC)

Temp. Range
— 0 to +95 Tj
C -40 to +95 Tj

Package
(see page 2)

Frequency
2 digits

Die Mask Revision

MPC8xxx PowerPC Processor Part Numbering Scheme

XPC | 8240 | L | ZU | 200 | C

Product Code
PPC Prototype Sample
KXPC Sample Pack (2-10)
KMPC Sample Pack (2-10)
XPC Engineering Production
MPC Qualified

8xxx Series Device
(8240, 8260)

Core Volt/Temp Spec (opt.)
— 0 to +95 Tj
C -40 to +95 Tj
L 105°C Tj
T ext. temp. (-40° to 105° Tj)
R 2.5 - 2.75 V, 105°C

Package
(see page 2)

Frequency
2-3 digits

Die Mask Revision

680x0 Series Processor Part Numbering Scheme

MC68 | EC | 000 | C | FN | 16 | V | B

Product Code
MC68 Full Spec. Product
XC68 Eng. Product
SPAK Sample Pack (2-10)

Part/Module Modifier
— Full CPU
EC No FPU or MMU
HC HCMOS
LC No FPU
SEC Static Embbeded

680x0 Series Device
(000, 020, 040, 060)

Temp. Range
— 0 to +70
C -40 to +85

Package
(see page 2)

Frequency
2 digits

Voltage
— 5 volts
V 3.3 volts

Die Mask Revision

683xx Series Processor Part Numbering Scheme

MC68 | EN | 302 | C | PV | 25 | V | B

Product Code
MC68 Full Spec. Product
XC68 Eng. Product
PC68 Eng. Sample
SPAK Sample Pack (2-10)
KXC Sample Pack (2-10)
KMC Sample Pack (2-10)

Part/Module Modifier
DP Data Pump
EC Embedded Controller
EN Ethernet
LC Low Cost
MH Multi-HDLC
QH Quad HDLC

683xx Series Device
(302, 306, 307, 330, 340, 360)

Temp. Range
— 0 to +70
I 0 to +80
C -40 to +85

Package
(see page 2)

Frequency
2 digits

Voltage
— 5 volts
V 3.3 volts

Die Mask Revision

ColdFire Processor Part Numbering Scheme

MCF | 5206 | E | C | FT | 33 | A

Product Code
MCF Full Spec. Product
XCF Eng. Product
PCF Eng. Sample
SPAK Sample Pack (2-10)

ColdFire Device
(5102, 5202, 5204, 5206, 5307)

Part/Module Modifier
E Enhanced

Temp. Range
— 0 to +70
C -40 to +85

Package
(see page 2)

Frequency
2 digits

Die Mask Revision

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USA/EUROPE: Motorola Literature Distribution;
P.O.Box 5405, Denver Colorado 80217
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WWW: http://ldc.nmd.com/

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