



**M68HC11, M68HC12, M68HC16,
M68300, and MPC500 Families**

PRODUCT SELECTION GUIDE
1997 FIRST EDITION (2Q/97)

NEW PRODUCTS

M68HC11 DEVICES

Motorola Part Number	ROM or EPROM	RAM	EEPROM	Timer	Serial	ADC	I/O	Bus Speed	Temp Range ¹	Operating Voltage	Package
68HC11PH8	48K	2K	768	16-bit Timer 3 or 4 IC, 4 or 5 OC, 3 8-bit Mod Timers 4 PWM, RTI, WDOG, Pulse Accumulator	2 SPI, 2 SCI	8 Bit	62	0–1.0 MHz 0–2.0 MHz 0–4.0 MHz	0–70 °C 0–70 °C C	2.7–3.3 V 3.0–5.5 V 4.5–5.5 V	84 FN 100 PU 112 PV

M68HC12 DEVICES

Motorola Part Number	ROM or EPROM	RAM	EEPROM or FLASH	Timer	Serial	ADC	I/O	Bus Speed	Temp Range	Operating Voltage	Package
68HC812A4	0	1K	4K	16-bit Timer 8 IC/OC, RTI, COP, WDOG Pulse Accumulator	SPI, 2 SCI	8 Bit	91	8 MHz	0–70 °C	2.7–5.5V	112 PV
68HC912B32	0	1K	768 32K	16-bit Timer 8 IC/OC, RTI, COP, WDOG Pulse Accumulator 4 PWM	SPI, SCI	8 Bit	63	8 MHz	0–70 °C	4.5–5.5V	80 FU

M68HC16 AND M68300 DEVICES

Motorola Part Number	ROM or EPROM	RAM	EEPROM or FLASH	Timer	Serial	ADC	I/O	Clock Speed	Temp Range ¹	Operating Voltage	Package
68HC16R1	48K	2K	0	Multichannel CTM7 PIT, WDOG	2 SCI, SPI	8 / 10 Bit	88	0–16.78 MHz	C	4.5–5.5 V	132 FC
68HC916R1	0	2K	16+32K 2K BE	Multichannel CTM7 PIT, WDOG	2 SCI, SPI	8 / 10 Bit	88	0–16.78 MHz	C	4.5–5.5 V	132 FC
68338	0	64	0	Multichannel CTM6 PIT, WDOG	QSPI, SCI	—	55	0–14.4 MHz	C	2.7–3.6 V	144 PV
68376 ⁴	0	7.5K	0	16-channel TPU Multichannel CTM4 PIT, WDOG	QSPI, SCI	8/10 Bit	55	0–20.97 MHz	M	4.5–5.5 V	160 FT

MPC500 DEVICES

Motorola Part Number	ROM or EPROM	RAM	EEPROM or FLASH	Timer	Serial	ADC	I/O	Clock Speed	Temp Range ¹	Operating Voltage	Package
MPC509	0	28K	0	64-bit Time Base 32-bit Decrement Ctr 16-bit PIT Bus Monitor 2 WDOG	IEEE 1149.1 JTAG	—	58	0-25 MHz	M	2.7–3.3V	160 FT

Notes:

1. Temperature Ranges: C = (–40°C to 85°C), V = (–40°C to 105°C), M = (–40°C to 125°C)
2. Preferred Order Quantity multiple to be used when ordering parts.
3. Refer to the *MCTG Software and Development Tool Operations Selector Guide* (SG180/D) for detailed information.
4. Available with either Enhanced TPU Function Set or Motion Control TPU Function Set.

M68HC11 DEVICES

POQ ²	Bus Types	Features	Samples	Development System ³	Development Software ³	Documentation
16 16 16	Non-Mux	PLL Clock 4-segment LCD Driver Low Noise	NOW	EVS MMDS SPGMR	RTEK™ Kernel	MC68HC11PH8/D

M68HC12 DEVICES

POQ ²	Bus Types	Features	Samples	Development System ³	Development Software ³	Documentation
26	Non-Mux	16-Bit HC11 Fuzzy Logic Inst Background Debug™ Mode Low Power C Efficient	NOW	EVB SDI™ Interface	MCUinit™ Tool RTEK Kernel	MC68HC812A4TS/D CPU12RM/AD
2 250	MUX	16-Bit HC11 Fuzzy Logic Inst Background Debug Mode C Efficient	NOW	EVB SDI Interface	RTEK Kernel	MC68HC912B32TS/D CPU12RM/AD

M68HC16 AND M68300 DEVICES

POQ ²	Features	Samples	Development System ³	Development Software ³	Documentation
2 36 180	9 Chip-Selects External Bus and Single Chip Modes Background Debug Mode	NOW	SDI Interface	RTEK Kernel	MC68HC16R1PP/D MC68HC16R1UM/AD
2 36 180	9 Chip-Selects External Bus and Single Chip Modes Background Debug Mode	NOW	SDI Interface	RTEK Kernel	MC68HC16R1PP/D MC68HC16R1UM/AD
2 60 300	Low-Power CPU and SIM 12 Chip-Selects External Bus Mode Background Debug Mode	NOW	SDI Interface	RTEK Kernel	MC68K338TS/D Module Reference Manuals
2 24 120	Queued ADC CAN 2.0B External Bus Mode Background Debug Mode	NOW	MEVB SDI Interface	TPUMASM RTEK Kernel	MC68336/376UM/AD Module Reference Manuals

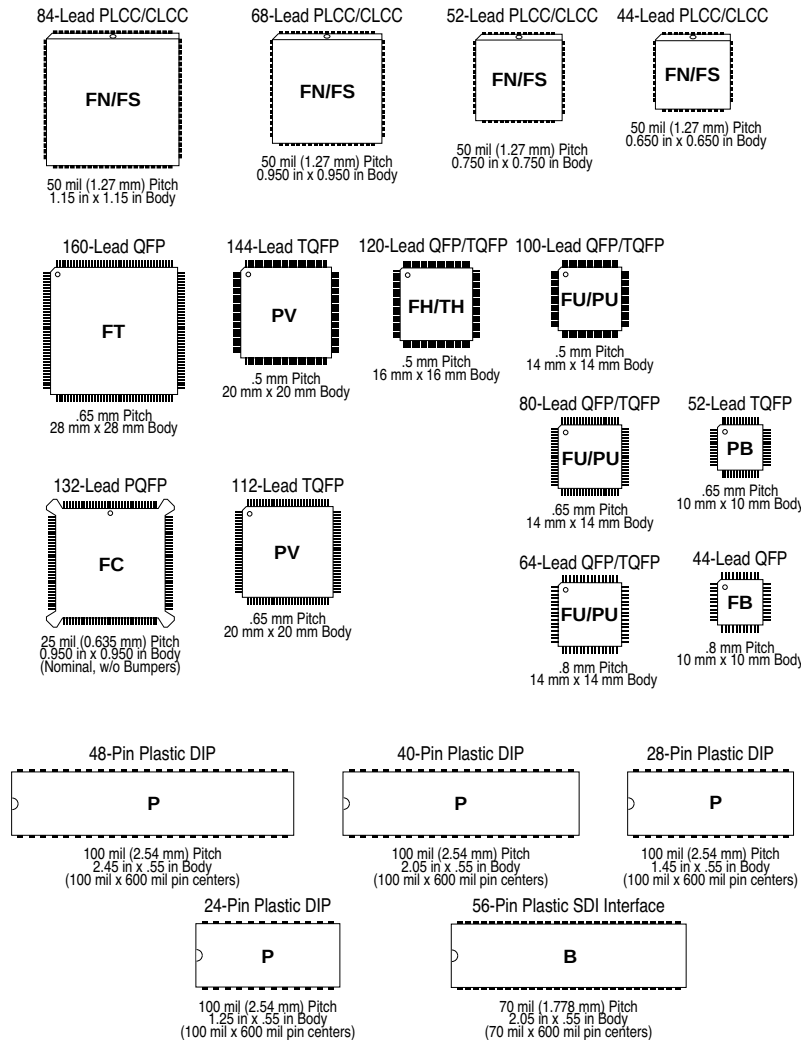
MPC500 DEVICES

POQ ²	Features	Samples	Development System ³	Development Software ³	Documentation
2 24 120	32-Bit PowerPC™ RISC CPU FPU, 4K I-Cache 13 Chip-Selects Multimode External Bus Background Debug Mode	NOW	EVB	Dev Tool Suite RTEK Kernel	RCPURM/AD SIURM/AD

TABLE DEFINITIONS

- ADC — Analog-to-Digital Converter
- BDM — Background Debug™ Mode
- BCC — Business Card Computer
- BE — Block Erasable FLASH Memory
- CLCC — Ceramic Leaded Chip Carrier
- CPU16 — 16-bit Central Processing Unit (HC11 Compatible)
- CPU32 — 32-bit Central Processing Unit (68000 Compatible)
- CTM — Configurable Timer Module (Various Hardware Options)
- DIP — Dual In-line Package
- EM — Emulation Module
- EVB — Evaluation Board
- EVBU — Universal Evaluation Board
- EVK — Evaluation Kit
- EVM — Evaluation Module
- EVS — Evaluation System/Emulation Module
- FPU — Floating Point Unit
- GPT — General-Purpose Timer Module (4 IC, 5 OC, 2 PWM)
- IC — Input Capture
- MCCI — Multichannel Communication Interface (2 SCI, SPI)
- MEVB — Modular Evaluation Board
- MUX — Multiplexed
- MMDS — Motorola Modular Development System
- MRM — Masked ROM Module
- OC — Output Compare
- PGMR — Programmer
- PIT — Programmable Interrupt Timer
- PLCC — Plastic Leaded Chip Carrier
- PLL — Phase Locked Loop
- POQ — Preferred Order Quantity
- PQFP — Plastic Quad Flat Pack
- PRU — Port Replacement Unit
- PWM — Pulse Width Modulation
- QADC — Queued Analog-to-Digital Converter (10-bit)
- QFP — Quad Flat Pack
- QSM — Queued Serial Module (SCI + QSPI)
- QSPI — Queued SPI
- RTC — Real-Time Clock
- RTEK — Real-Time Executive Kernel
- RTI — Real-Time Interrupt
- SCI — Serial Communication Interface
- SCI+ — Enhanced SCI
- SCIM — Single-Chip Integration Module
- SDI — Serial Debug Interface™
- SDIP — Shrink Dual In-line Package
- SIM — System Integration Module
- SPGMR — Serial Programmer
- SPI — Serial Peripheral Interface
- SPI+ — Enhanced SPI
- SRAM — Standby RAM Module
- TPU — Time Processor Unit (16 Programmable Channels)
- TPURAM — Standby RAM Module with TPU Emulation Capability
- TQFP — Thin Quad Flat Pack
- UART — Universal Asynchronous Receiver/Transmitter
- WDOG — Watch Dog Timer

PACKAGE OPTIONS (ACTUAL SIZE)



ESTABLISHED PRODUCTS

M68HC11 AND M68L11 DEVICES

Motorola Part Number	ROM or EPROM	RAM	EEPROM	Timer	Serial	ADC	I/O	Bus Speed	Temp Range ¹	Operating Voltage	Package
68HC(L)11A0 68HC(L)11A1 68HC(L)11A7 68HC(L)11A8	0 0 8K 8K	256 256 256 256	0 512 0 512	16-bit Timer 3 IC, 5 OC, RTI, WDOG, Pulse Accumulator	SPI, SCI	8 Bit	22 22 38 38	0–3.0 MHz 0–2.0 MHz	C, V, M 0–70 °C	4.5–5.5 V 3.0–5.5 V	48 P 52 FN 52 PB 56 B 64 FU
68HC(L)11C0	0	256	0	16-bit Timer 3 or 4 IC, 4 or 5 OC, RTI, WDOG, Pulse Accumulator 2 PWM	SPI, SCI	8 Bit	35	0–2.0 MHz 0–3.0 MHz 0–2.0 MHz	C, V, M C 0–70 °C	4.5–5.5 V 4.5–5.5 V 3.0–5.5 V	64 FU
68HC(L)11D0 68HC(L)11D3	0 4K	192 192	0 0	16-bit Timer 3 or 4 IC, 4 or 5 OC, RTI, WDOG, Pulse Accumulator	SPI, SCI	—	16 32	0–2.0 MHz 0–3.0 MHz 0–2.0 MHz	C, V, M C 0–70 °C	4.5–5.5 V 4.5–5.5 V 3.0–5.5 V	40 P 44 FN 44 FB 52 PB
68HC711D3 ⁵	4K	192	0	16-bit Timer 3 or 4 IC, 4 or 5 OC, RTI, WDOG Pulse Accumulator	SPI, SCI	—	32	0–2.0 MHz 0–3.0 MHz	C, V, M C	4.5–5.5 V	40 P 40 S 44 FN 44 FS 44 FB
68HC(L)11E0 68HC(L)11E1 68HC(L)11E8 68HC(L)11E9	0 0 12K 12K	512 512 512 512	0 512 0 512	16-bit Timer 3 or 4 IC, 4 or 5 OC, RTI, WDOG, Pulse Accumulator	SPI, SCI	8 Bit	22 22 38 38	0–3.0 MHz 0–2.0 MHz	C, V, M 0–70 °C	4.5–5.5 V 3.0–5.5 V	48 P 52 FN 52 PB 64 FU
68HC711E9	12K	512	512	16-bit Timer 3 or 4 IC, 4 or 5 OC, RTI, WDOG, Pulse Accumulator	SPI, SCI	8 Bit	38	0–2.0 MHz 0–3.0 MHz	C, V, M C	4.5–5.5 V	52 FS 52 FN 64 FU
68HC11E20	20K	768	512	16-bit Timer 3 or 4 IC, 4 or 5 OC, RTI, WDOG, Pulse Accumulator	SPI, SCI	8 Bit	38	0–3.0 MHz	C, V, M	4.5–5.5 V	52 FN 64 FU
68HC811E2	0	256	2K	16-bit Timer 3 or 4 IC, 4 or 5 OC, RTI, WDOG, Pulse Accumulator	SPI, SCI	8 Bit	38	0–2.0 MHz	C, V, M	4.5–5.5 V	52 FN 48 P
68HC11EA9	12K	512	512	16-bit Timer 3 or 4 IC, 4 or 5 OC, RTI, WDOG, Pulse Accumulator	SCI+	8 Bit	38	0–2.0 MHz	C, V, M	4.5–5.5 V	52 FN 56 B
68HC711EA9	12K	512	512	16-bit Timer 3 or 4 IC, 4 or 5 OC, RTI, WDOG, Pulse Accumulator	SCI+	8 Bit	38	0–2.0 MHz	C, V, M	4.5–5.5 V	52 FN 56 B
68HC11ED0	0	512	0	16-bit Timer 3 or 4 IC, 4 or 5 OC, RTI, WDOG, Pulse Accumulator	SPI, SCI	—	16	0–3.0 MHz	C, V, M	4.5–5.5 V	44 FN 44 FU 40 P
68HC(L)11F1	0	1K	512	16-bit Timer 3 or 4 IC, 4 or 5 OC, RTI, WDOG, Pulse Accumulator	SPI, SCI	8 Bit	30	0–4.0 MHz 0–3.0 MHz 0–5.0 MHz	C, V, M C 0–70 °C	4.5–5.5 V 3.0–5.5 V 4.5–5.5 V	64 FU 68 FN 80 PU
68HC(L)11K0 68HC(L)11K1 68HC(L)11K3 68HC(L)11K4	0 0 24K 24K	768 768 768 768	0 640 0 640	16-bit Timer 3 or 4 IC, 4 or 5 OC, 4 PWM, RTI, WDOG, Pulse Accumulator	SPI, SCI+	8 Bit	37 37 62 62	0–3.0 MHz 0–4.0 MHz 0–2.0 MHz	C, V, M C, V 0–70 °C	4.5–5.5 V 4.5–5.5 V 3.0–5.5 V	84 FN 80 FU
68HC711K4	24K	768	640	16-bit Timer 3 or 4 IC, 4 or 5 OC, 4 PWM, RTI, WDOG, Pulse Accumulator	SPI SCI+	8 Bit	62	0–4.0 MHz	C, V, M	4.5–5.5 V	84 FN 84 FS 80 FU

M68HC11 AND M68L11 DEVICES

POQ ²	Bus Types	Features	Port Replacement Unit ³	Development System ⁴	Development Software ⁴	Documentation
7 24 500	Mux	—	68HC24	EVb, EVS/EM MMDS SPGMR	RTEK Kernel	MC68HC11A8TS/D MC68HC11A8/D MC68HC11A8RG/AD
7 24 500	Mux	Enhanced Windowing and Chip-Select Functions	—	MMDS SPGMR	RTEK Kernel	MC68HC11C0TS/D
9 26 500	Mux	—	68HC27	EVS/EM MMDS SPGMR	RTEK Kernel	BR777/D MC68HC11D3/D MC68HC11D3RG/AD
9 9 26 26 500	Mux	—	68HC27	EVS/EM MMDS SPGMR	RTEK Kernel	BR778/D MC68HC71D3/D MC68HC11D3RG/AD
24 500	Mux	4 EEPROM Block Protects	68HC24	EVS/EM MMDS SPGMR	RTEK Kernel	MC68HC11E9TS/D MC68HC11E/D MC68HC11ERG/AD
23 23 500	Mux	4 EEPROM Block Protects	68HC24	EVb, EVS/EM MMDS SPGMR	RTEK Kernel	BR775/D MC68HC11E/D MC68HC11ERG/AD
19 19	Mux	Expanded 11E9, Additional Baud Rates	68HC24	EVS/EM MMDS SPGMR	RTEK Kernel	MC68HC11E20TS/D MC68HC11E/D MC68HC11ERG/AD
23 7	Mux	4 EEPROM Block Protects	68HC24	EVb, EVBU EVS/EM MMDS SPGMR	RTEK Kernel	BR780/D MC68HC11E/D MC68HC11ERG/AD
19 19	Mux	Low Pin Count PLL Clock EEPROM Block Protect	68HC24	EVS/EM MMDS SPGMR	RTEK Kernel	MC68HC11EA9TS/D MC68HC11E/D MC68HC11ERG/AD
19 19	Mux	Low Pin Count PLL Clock EEPROM Block Protect	68HC24	EVS/EM MMDS SPGMR	RTEK Kernel	MC68HC11EA9TS/D MC68HC11E/D MC68HC11ERG/AD
26	Mux	Minimum Pin Count Low Cost	68HC24	MMDS SPGMR	RTEK Kernel	MC68HC11ED0TS/D M68HC11ED0RG/AS
19 500	Non-Mux	Chip-Selects 4 EEPROM Block Protects	68HC27	EVS/EM MMDS SPGMR	RTEK Kernel	MC68HC11FTS/D MC68HC11F/D MC68HC11F1RG/AD
16 500	Non-Mux	Chip-Selects 5 EEPROM Block Protects	68HC27	EVS/EM MMDS SPGMR	RTEK Kernel	MC68HC11KTS/D MC68HC11K4/D MC68HC11K4RG/AD
16 16 500	Non-Mux	Chip-Selects 5 EEPROM Block Protects	68HC27	EVS/EM MMDS SPGMR	RTEK Kernel	MC68HC11KTS/D MC68HC11K4/D MC68HC11K4RG/AD

M68HC11 AND M68L11 DEVICES (Continued)

Motorola Part Number	ROM or EPROM	RAM	EEPROM	Timer	Serial	ADC	I/O	Bus Speed	Temp Range ¹	Operating Voltage	Package
68HC(L)11KA0 68HC(L)11KA1 68HC(L)11KA3 68HC(L)11KA4	0 0 24K 24K	768 768 768 768	0 640 0 640	16-bit Timer 3 or 4 IC, 4 or 5 OC, 4 PWM, RTI, WDOG, Pulse Accumulator	SPI, SCI+	8 Bit	26 26 51 51	0–4.0 MHz 0–2.0 MHz	C 0–70 °C	4.5–5.5 V 3.0–5.5 V	64 FU 68 FN 80 PU
68HC11KA2	32K	1K	640	16-bit Timer 3 or 4 IC, 4 or 5 OC, 4 PWM, RTI, WDOG, Pulse Accumulator	SPI, SCI+	8 Bit	51	0–4.0 MHz	C, V, M	4.5–5.5 V	68 FN 80 PU
68HC711KA2	32K	1K	640	16-bit Timer 3 or 4 IC, 4 or 5 OC, 4 PWM, RTI, WDOG, Pulse Accumulator	SPI, SCI+	8 Bit	51	0–4.0 MHz	C, V, M	4.5–5.5 V	68FN 68 FS 80 PU
68HC11KW1	0	768	640	16-bit Timer 3 IC, 5 OC, 4 PWM, RTI, WDOG, Pulse Accumulator	SPI+, SCI+	10 Bit	80	0–4.0 MHz	C, V	4.5–5.5 V	100 PU
68HC(L)11L0 68HC(L)11L1 68HC(L)11L5 68HC(L)11L6	0 0 16K 16K	512 512 512 512	0 512 0 512	16-bit Timer 3 or 4 IC, 4 or 5 OC, RTI, WDOG, Pulse Accumulator	SPI, SCI	8 Bit	30 30 46 46	0–2.0 MHz 0–3.0 MHz 0–2.0 MHz	C, V, M 0–70 °C 0–70 °C	4.5–5.5 V 4.5–5.5 V 3.0–5.5 V	64 FU 68 FN
68HC711L6	16K	512	512	16-bit Timer 3 or 4 IC, 4 or 5 OC, RTI, WDOG, Pulse Accumulator	SPI, SCI	8 Bit	46	0–2.0 MHz	C, V, M	4.5–5.5 V	64 FU 68 FN 68 FS
68HC11P2	32K	1K	640	16-bit Timer 3 or 4 IC, 4 or 5 OC, 4 PWM, RTI, WDOG, Pulse Accumulator	SPI, 3 SCI+	8 Bit	62	0–4.0 MHz	C	4.5–5.5 V	84 FN
68HC711P2	32K	1K	640	16-bit Timer 3 or 4 IC, 4 or 5 OC, 4 PWM, RTI, WDOG, Pulse Accumulator	SPI, 3 SCI+	8 Bit	62	0–4.0 MHz	C	4.5–5.5 V	84 FN 84 FS

- Notes:
1. Temperature Ranges: C = (–40°C to 85°C), V = (–40°C to 105°C), M = (–40°C to 125°C)
2. Preferred Order Quantity multiple to be used when ordering parts.
3. PRU available in 4.5–5.5 V operating voltage only.
4. Refer to the *MCTG Software and Development Tool Operations Selector Guide* (SG180/D) for detailed information.
5. A Secure ROM version of this device is available.

M68HC16 DEVICES

Motorola Part Number	ROM or EPROM	RAM	EEPROM or FLASH	Timer	Serial	ADC	I/O	Clock Speed	Temp Range ²	Operating Voltage	Package
68HC16S2	0	2K	0	PIT, WDOG	NO	NO	23	0–20.97 MHz	C	4.5–5.5 V	100 PU
68HC16V1	512 Boot ROM	0	0	3 or 4 IC, 4 or 5 OC, PIT, WDOG	QSPI, SCI	NO	51	0–20.97 MHz	C	4.5–5.5 V	100 PU
68HC916X1	0	2K	50K	3 or 4 IC, 4 or 5 OC, 2 PWM PIT, WDOG Pulse Accumulator	QSPI, SCI	8/10 Bit	70	0–16.78 MHz	C	4.5–5.5 V	120 TH

M68HC11 AND M68L11 DEVICES (Continued)

POQ ²	Bus Types	Features	Port Replacement Unit ³	Development System ⁴	Development Software ⁴	Documentation
16	Non-Mux	5 EEPROM Block Protects	68HC27	EVS/EM MMDS SPGMR	RTEK Kernel	MC68HC11KA4TS/D MC68HC11KA4RG/AD
16	Non-Mux	High-Speed Low Pin Count Enhanced Serial Interface	NOW	EVS/EM MMDS SPGMR	RTEK Kernel	MC68HC11KA4TS/D MC68HC11KA4RG/AD
16	Non-Mux	High-Speed Enhanced Serial Interface	NOW	EVS/EM MMDS SPGMR	RTEK Kernel	MC68HC11KA4TS/D MC68HC11KA4RG/AD
16	Non-Mux	4 Chip-Selects 10-ch, 10-bit ADC Enhanced Serial Interface	NOW	MMDS SPGMR	RTEK Kernel	MC68HC11KW1/D
500 19	Mux	4 EEPROM Block Protects	68HC24	EVS/EM MMDS SPGMR	RTEK Kernel	BR774/D MC68HC11L6/D MC68HC11L6RG/AD
500 19 19	Mux	4 EEPROM Block Protects	68HC24	EVS/EM MMDS SPGMR	RTEK Kernel	MC68HC711L6TS/D MC68HC711L6/D MC68HC11L6RG/AD
16	Non-Mux	PLL Clock 2 Ml Bus Units	68HC27	EVS/EM MMDS SPGMR	RTEK Kernel	MC68HC11P2/D
19 19	Non-Mux Bus	PLL Clock 2 Ml Bus Units	68HC27	EVS/EM MMDS SPGMR	RTEK Kernel	MC68HC11P2/D

M68HC16 DEVICES

POQ ³	Modes	Features	Modules	Development System ⁴	Development Software ⁴	Documentation
2 84 420	External Bus Background Debug Mode	12 Chip-Selects Synthesized Clock	CPU16, SIM, SRAM	MEVB MMDS SDI Interface	RTEK Kernel	MC68HC16S2TS/D CPU16RM/AD SIMRM/AD
2 84 420	External Bus Single-Chip Background Debug Mode	3 Chip-Selects Synthesized Clock	CPU16, SLIM, GPT, QSM	SDI Interface	RTEK Kernel	MC68HC16V1TS/D Module Reference Manuals
2 50 250	External Bus Single-Chip Background Debug Mode	9 Chip-Selects Synthesized Clock	CPU16, SCIM, QSM, GPT, ADC, SRAM FLASH, BE	MEVB MMDS SDI Interface	RTEK Kernel	MC68HC916X1TS/D Module Reference Manuals

M68HC16 DEVICES (Continued)

Motorola Part Number	ROM or EPROM	RAM	EEPROM or FLASH	Timer	Serial	ADC	I/O	Clock Speed	Temp Range ²	Operating Voltage	Package
68HC16Y1 ⁵	48K ¹	2K	0	16-channel TPU 3 or 4 IC, 4 or 5 OC 2 PWM PIT, WDOG Pulse Accumulator	SPI, 2 SCI	8/10 Bit	95	0–16.78 MHz	C, V, M	4.5–5.5 V	160 FT
68HC916Y1 ⁵	0	4K	48K	16-channel TPU 3 or 4 IC, 4 or 5 OC 2 PWM PIT, WDOG Pulse Accumulator	SPI, 2 SCI	8/10 Bit	95	0–16.78 MHz	C	4.5–5.5 V	160 FT
68HC16Z1	0	1K	0	3 or 4 IC, 4 or 5 OC 2 PWM PIT, WDOG Pulse Accumulator	QSPI, SCI	8/10 Bit	46	0-16.78 MHz 0-16.78 MHz 0-20.97 MHz 0-25.17 MHz	C C, V, M C, V, M C	2.7-3.6 V 4.5-5.5 V 4.75-5.25 V 4.75-5.25 V	132 FC 144 PV
68HC16Z1 68HC16Z2 68HC16Z3	0 8K ¹ 8K	1K 2K 4K	0	3 or 4 IC, 4 or 5 OC 2 PWM PIT, WDOG Pulse Accumulator	QSPI, SCI	8/10 Bit	46	0-16.78 MHz 0-16.78 MHz 0-20.97 MHz 0-25.17 MHz	C C, V, M C, V, M C	2.7-3.6 V 4.5-5.5 V 4.75-5.25 V 4.75-5.25 V	132 FC 144 PV

M68300 DEVICES

Motorola Part Number	ROM or EPROM	RAM	EEPROM or FLASH	Timer	Serial	ADC	I/O	Clock Speed	Temp Range ²	Operating Voltage	Package
68331	0	0	0	3 or 4 IC, 4 or 5 OC, 2 PWM PIT, WDOG Pulse Accumulator	QSPI, SCI	—	43	0–16.78 MHz 0–16.78 MHz 0–20.97 MHz 0–25.17 MHz	C C, V, M C, V, M C	3.0–3.6 V 4.5–5.5 V 4.75–5.25 V 4.75–5.25 V	132 FC 144 PV
68332 ⁵	0	2K	0	16-channel TPU PIT, WDOG	QSPI, SCI	—	47	0–16.78 MHz 0–16.78 MHz 0–20.97 MHz 0–25.17 MHz	C C, V, M C, V, M C	3.0–3.6 V 4.5–5.5 V 4.75–5.25 V 4.75–5.25 V	132 FC 144 PV
68F333	0	4K	64K	16-channel TPU PIT, WDOG	QSPI, SCI	8/10 Bit	79	0–16.78 MHz	C	4.5–5.5 V	160 FT
68334	0	1K	0	16-channel TPU PIT, WDOG	No	8/10 Bit	16	0–16.78 MHz 0–20.97 MHz	C C	4.5–5.5 V 4.75–5.25 V	132 FC
68336 ⁵	0	7.5K	0	16-channel TPU CTM4 PIT, WDOG	QSPI, SCI	8/10 Bit	32	0–20.97 MHz 0–25.17 MHz	C, V, M C, V	4.75–5.25 V	160 FT

MPC500 DEVICES

Motorola Part Number	ROM or EPROM	RAM	EEPROM or FLASH	Timer	Serial	ADC	I/O	Clock Speed	Temp Range ²	Operating Voltage	Package
MPC505	0	4K	0	64-bit Time Base 32-bit Decrement Ctr 16-bit PIT Bus Monitor 2 WDOG	IEEE 1149.1 JTAG	—	58	0-28 MHz	C	2.7–3.3V	160 FT

Notes:

- Available in “ROMless” configuration, with ROM array present, but not programmable.
- Temperature Ranges: C = (–40°C to 85°C), V = (–40°C to 105°C), M = (–40°C to 125°C)
- Preferred Order Quantity multiple to be used when ordering parts.
- Refer to the *MCTG Software and Development Tool Operations Selector Guide* (SG180/D) for detailed information.
- Available with either Enhanced TPU Function Set (A) or Motion Control TPU Function Set (G).

M68HC16 DEVICES (Continued)

POQ ³	Modes	Features	Modules	Development System ⁴	Development Software ⁴	Documentation
2 24 96	External Bus Single-Chip Background Debug Mode	9 Chip Selects Synthesized Clock	CPU16, SCIM, MCCI, TPU, GPT, ADC, TPURAM, MRM	MMDS MEVB SDI Interface	MCUinit Tool TPUMASM RTEK Kernel	MC68HC16Y1TS/D MC68HC16Y1UM/AD Module Reference Manuals
240	External Bus Single-Chip Background Debug Mode	9 Chip Selects Synthesized Clock	CPU16, SCIM, MCCI, TPU, GPT, ADC, SRAM, TPURAM, FLASH	MMDS MEVB SDI Interface	MCUinit TPUMASM RTEK Kernel	MC68HC16Y1TS/D MC68HC16Y1UM/AD Module Reference Manuals
2, 36, 180 2, 44, 220	External Bus Background Debug Mode	12 Chip Selects Synthesized Clock	CPU16, SIM, QSM, GPT, ADC, SRAM, MRM	MMDS MEVB SDI Interface	MCUinit Tool RTEK Kernel	MC68HC16Z1TS/D MC68HC16Z2TS/D MC68HC16ZUM/AD Module Reference Manuals
2, 36, 180 2, 44, 220	External Bus Background Debug Mode	12 Chip Selects Synthesized Clock	CPU16, SIM, QSM, GPT, ADC, SRAM, MRM	MMDS MEVB SDI Interface	MCUinit Tool RTEK Kernel	MC68HC16Z1TS/D MC68HC16Z2TS/D MC68HC16ZUM/AD Module Reference Manuals

M68300 DEVICES

POQ ³	Modes	Features	Modules	Development System ⁴	Development Software ⁴	Documentation
2, 36,180 2, 44, 220 2, 60, 300	External Bus Background Debug Mode	12 Chip Selects Synthesized Clock	CPU32, SIM, QSM, GPT	MMDS, MEVB, EVK SDI Interface	MCUinit Tool RTEK Kernel	MC68331TS/D MC68331UM/AD Module Reference Manuals
2, 36,180 2, 44, 220 2, 60, 300	External Bus Background Debug Mode	12 Chip Selects Synthesized Clock	CPU32, SIM, QSM, TPU, TPURAM	MMDS MEVB, BCC EVK SDI Interface	MCUinit Tool TPUMASM RTEK Kernel	MC68332TS/D MC68332UM/AD Module Reference Manuals
2 24 96	Single Chip External Bus Background Debug Mode	9 Chip Selects 16K and 48K Flash EEPROM Arrays	CPU32, SCIM, QSM, TPU, ADC, FLASH, SRAM, TPURAM,	MMDS MEVB SDI Interface	MCUinit Tool TPUMASM RTEK Kernel	MC68F333TS/D MC68F333UM/AD Module Reference Manuals
2 36	External Bus Background Debug Mode	12 Chip Selects Synthesized Clock	CPU32, SIM, TPU, ADC, TPURAM	MMDS MEVB SDI Interface	MCUinit Tool TPUMASM RTEK Kernel	MC68334TS/D Module Reference Manuals
2 24 96	External Bus Background Debug Mode	Queued ADC 4 Capture/Compare 4 PWM Channels	CPU32, SIM, TPU, CTM4, QSM, QADC, TPURAM, SRAM	MEVB SDI Interface	MCUinit Tool TPUMASM RTEK Kernel	MC68336TS/D M68336/376UM/AD Module Reference Manuals

MPC500 DEVICES

POQ ³	Feature	Development System ⁴	Development Software ⁴	Documentation
2 24 120	32-Bit PowerPC™ RISC CPU FPU 4K I-Cache 13 Chip-Selects 5V Friendly Input Multimode External Bus Background Debug Mode	EVB	Dev Tool Suite RTEK Kernel	MPC505TS/D RCPURM/AD SIURM/AD

ADDITIONAL PRODUCT INFORMATION

On-line Access:

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MCU development hardware and software products are available from Motorola and from independent suppliers. For more information, please refer to Motorola Publication SG180/D, *MCTG Software and Development Tools Operation Selector Guide*, and to Motorola Publication MCUDEVTLDIR/D, *Motorola Microcontroller Development Tools Directory*.

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