

Technical and Applications Literature

Selector Guide and Cross References

Effective Date 2nd Half 1998

Addendum to BR101/D Rev 28



MOTOROLA

Semiconductor Products Sector



MOTOROLA

Technical
and
Applications
Literature

**Selector Guide
and Cross References**

Addendum to BR101/D Rev 28

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Applications Documents

Introduction

Motorola's Applications Literature provides guidance to the effective use of its semiconductor families across a broad range of practical applications. Many different topics are discussed – in a way that is not possible in a device data sheet – from detailed circuit designs complete with PCB layouts, through matters to consider when embarking on a design, to complete overviews of a microprocessor family and its design philosophy.

Information is presented in the form of Application Notes and Article Reprints (originally published¹ in the electronics press), plus detailed Engineering Bulletins, Benchbriefs², Design Concepts and APRs³. This section provides a guide to these items; it includes a Selector Guide listing documents under subject or device-type headings, and a Device Cross Reference listing them by featured devices. Documents new to this issue are highlighted.

The Application Notes, Article Reprints, Engineering Bulletins, and Design Concepts are included to enhance the user's knowledge and understanding of Motorola's products. However, before attempting to design-in a device referenced in these documents, contact the local Motorola supplier for product availability and available application support.

Each section of the Applications Literature Selector Guide also includes cross references to a selection from Motorola's extensive range of Data Books, Brochures, Technical Bulletins and Selector Guides which may provide further relevant information.

Information in this document is given in good faith and no liability is accepted for errors or omissions. Includes literature published or revised between December 1, 1997, and June 1, 1998.

¹ Article Reprints are reproduced with the permission of the original publisher.

² A Benchbrief is an Engineering Bulletin produced by Motorola Asia-Pacific Group.

³ APRs are applications documents relating specifically to Digital Signal Processing.

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Applications Documents

Device Cross Reference

This quick-reference list indicates where specific components are featured in Application Notes, Article Reprints, Engineering Bulletins and Design Concepts.

Documents listed here have been added or revised since BR101/D Rev 28

ASB200	*AN1655/D	ASB200 – Motorola Sensor Development Controller Board
DEVB147	AN1309/D	Compensated Sensor Bar Graph Pressure Gauge
DEVB173	AN1324/D	A Simple Sensor Interface Amplifier
LM3914	AN1309/D	Compensated Sensor Bar Graph Pressure Gauge
M68HC05	*AN1744/D	Resetting Microcontrollers During Power Transitions
M68HC05Px	*AN1736/D	Variations in the Motorola MC68HC05Px Family
M68HC08	*AN1744/D	Resetting Microcontrollers During Power Transitions
M68HC11	*AN1633/D *AN1744/D	A “No Glue Logic” Method for Booting the MPA1000 via SPI Resetting Microcontrollers During Power Transitions
M68HC12	*AN1280A/D AN1716/D	Using the Callable Routines in D-Bug12 Using M68HC12 Indexed Indirect Addressing
MC68F333	*AN1724/D	Implementing SCI Receive and Transmit Buffers in C
MC68HC05JB2	*AN1732/D	A Universal Serial Bus Gamepad Device using the MC68HC05JB2
MC68HC05JJ	*AN1738/D *AN1740/D *AN1741/D	Instruction Cycle Timing of MC68HC05JJ/JP Series Microcontrollers Applications Using the Analog Subsystem of MC68HC05JJ/JP Series... In-Circuit and Emulation Considerations for MC68HC05JJ/JP Series...
MC68HC05JP	*AN1738/D *AN1740/D *AN1741/D	Instruction Cycle Timing of MC68HC05JJ/JP Series Microcontrollers Applications Using the Analog Subsystem of MC68HC05JJ/JP Series... In-Circuit and Emulation Considerations for MC68HC05JJ/JP Series...
MC68HC11A0	*EB286/D	C Macro Defenitions for the MC68HC11A8/A7/A1/A0
MC68HC11A1	*EB286/D	C Macro Defenitions for the MC68HC11A8/A7/A1/A0
MC68HC11A7	*EB286/D	C Macro Defenitions for the MC68HC11A8/A7/A1/A0
MC68HC11A8	*EB286/D	C Macro Defenitions for the MC68HC11A8/A7/A1/A0
MC68HC11C0	*EB283/D	C Macro Definitions for the MC68HC11C0
MC68HC11D0	*EB284/D	C Macro Definitions for the MC68HC(7)11D3/D0
MC68HC11D3	*EB284/D	C Macro Definitions for the MC68HC(7)11D3/D0
MC68HC11E20	*EB285/D	C Macro Definitions for the MC68HC(7)11E20
MC68HC11E9	*AN1285/D	Stepper Motor Control with an MC68HC11E9 Microcontroller
MC68HC11ED0	*EB288/D	C Macro Definitions for the MC68HC11ED0
MC68HC11F1	*EB289/D	C Macro Definitions for the MC68HC11F1
MC68HC705B16	*AN1638/D	Offset Calibration of Gauge Pressure Sensor Using Parallel I/O Ports
MC68HC705C8A	*AN1734/D *AN1745/D	Pulse Width Modulation Using the 16-Bit Timer Interfacing the HC705C8A to an LCD Module
MC68HC705J1A	*AN1730/D *AN1742/D	Digital Amplification of an Analog Signal Using the MC68HC705J1A Programming the 68HC705J1A In-Circuit
MC68HC705JP7	*AN1655/D	ASB200 – Motorola Sensor Development Controller Board

MC68HC705L16	* AN1743/D	Scrolling Message Software
MC68HC705P9	* AN1733/D	Implementing Caller ID Functionality in MC68HC(7)05 Applications
MC68HC708MP16	* AN1728/D	Making Low-Distortion Waveforms with the MC68HC708MP16
MC68HC711D0	* EB284/D	C Macro Definitions for the MC68HC(7)11D3/D0
MC68HC711D3	* EB284/D	C Macro Definitions for the MC68HC(7)11D3/D0
MC68HC711E20	* EB285/D	C Macro Definitions for the MC68HC(7)11E20
MC68HC912B32	* AN1718/D * EB183/D	A Serial Bootloader for Reprogramming the MC68HC912B32 Flash EEPROM Erasing and Programming the FLASH EEPROM on the MC68HC912B32
MC68HSC705C8A	* AN1734/D	Pulse Width Modulation Using the 16-Bit Timer
MC1658	AN1207/D	The MC145170 in Basic HF and VHF Oscillators
MC33169	* AN1602/D	3.6V and 4.8V GSM/DCS1800 Dual Band PA Application with DECT Capability...
MC33179	AN1516/D	Liquid Level Control Using a Motorola Pressure Sensor
MC33272	AN1324/D AN1325/D	A Simple Sensor Interface Amplifier Amplifiers for Semiconductor Pressure Sensors
MC33274	AN1325/D	Amplifiers for Semiconductor Pressure Sensors
MC68331	* AN1724/D	Implementing SCI Receive and Transmit Buffers in C
MC68332	* AN1724/D	Implementing SCI Receive and Transmit Buffers in C
MC68336	* AN1724/D	Implementing SCI Receive and Transmit Buffers in C
MC145170	AN1207/D	The MC145170 in Basic HF and VHF Oscillators
MCM69D536	AN1704/D	Switch Fabric Implementation Using Shared Memory
MCM69D618	AN1704/D	Switch Fabric Implementation Using Shared Memory
MMA1000P	* AN1640/D	Reducing Accelerometer Susceptibility to BCI
MOC2A60	AN1516/D	Liquid Level Control Using a Motorola Pressure Sensor
MPA1000	* AN1633/D * AN1634/D	A "No Glue Logic" Method for Booting the MPA1000 via SPI MPA1000 Power Savings and Thermal Characteristics
MPA1016	* AN1633/D	A "No Glue Logic" Method for Booting the MPA1000 via SPI
MPA1036	* AN1633/D	A "No Glue Logic" Method for Booting the MPA1000 via SPI
MPA1064	* AN1633/D	A "No Glue Logic" Method for Booting the MPA1000 via SPI
MPA1100	* AN1633/D	A "No Glue Logic" Method for Booting the MPA1000 via SPI
MPC106	* AN1722/D * AN1725/D * AN1727/D	SDRAM System Design Using the MPC106 Initializing SDRAM Parameters for Motorola MPC106-Based Systems Designing PCI 2.1-Compliant MPC106 Systems
MPX2000	AN1309/D AN1325/D AN1513/D * AN1660/D	Compensated Sensor Bar Graph Pressure Gauge Amplifiers for Semiconductor Pressure Sensors Mounting Techniques and Plumbing Options of Motorola's MPX Series Pressure... Compound Coefficient Pressure Sensor PSPICE Models
MPX2010	AN1324/D AN1325/D AN1516/D	A Simple Sensor Interface Amplifier Amplifiers for Semiconductor Pressure Sensors Liquid Level Control Using a Motorola Pressure Sensor
MPX2050	AN1324/D AN1516/D	A Simple Sensor Interface Amplifier Liquid Level Control Using a Motorola Pressure Sensor
MPX2100	AN1318/D AN1324/D AN1513/D AN1516/D	Interfacing Semiconductor Pressure Sensors to Microcomputers A Simple Sensor Interface Amplifier Mounting Techniques and Plumbing Options of Motorola's MPX Series Pressure... Liquid Level Control Using a Motorola Pressure Sensor
MPX2200	AN1324/D AN1513/D AN1516/D	A Simple Sensor Interface Amplifier Mounting Techniques and Plumbing Options of Motorola's MPX Series Pressure... Liquid Level Control Using a Motorola Pressure Sensor
MPX2700	AN1324/D	A Simple Sensor Interface Amplifier

Device Cross Reference

* indicates a new document

MPX2700 (contd.)	AN1513/D	Mounting Techniques and Plumbing Options of Motorola's MPX Series Pressure...
MPX5000	* AN1660/D	Compound Coefficient Pressure Sensor PSPICE Models
MPX5006	* AN1646/D	Noise Considerations for Integrated Pressure Sensors
MPX5100	AN1513/D	Mounting Techniques and Plumbing Options of Motorola's MPX Series Pressure...
MPX7100	AN1513/D	Mounting Techniques and Plumbing Options of Motorola's MPX Series Pressure...
MPXT5006D	* AN1638/D	Offset Calibration of Gauge Pressure Sensor Using Parallel I/O Ports
MRF1507	* EB209/D	Mounting Method for RF Power Leadless Surface Mount Transistors
MRFIC917	* AN1602/D	3.6V and 4.8V GSM/DCS1800 Dual Band PA Application with DECT Capability...
MRFIC1817	* AN1602/D	3.6V and 4.8V GSM/DCS1800 Dual Band PA Application with DECT Capability...



Applications Documents Literature Selector Guide

This selector guide lists applications documents under subject and device-type headings. It also includes cross references to some of Motorola's other literature which may provide further relevant information.

The documents listed here have been added or revised since BR101/D Rev 28

A/D and D/A Conversion

- * AN1740/D Applications Using the Analog Subsystem of MC68HC05JJ/JP Series Microcontrollers

ASICs (Application Specific ICs)

- * AN1633/D A "No Glue Logic" Method for Booting the MPA1000 via SPI
- * AN1634/D MPA1000 Power Savings and Thermal Characteristics
- * AN1641/D Generating Multiple Internal Clocks in the Motorola Programmable Array

Audio Amplifiers and Systems

- * AN1730/D Digital Amplification of an Analog Signal Using the MC68HC705J1A

Automotive Applications

- * AN1640/D Reducing Accelerometer Susceptibility to BCI
- * AN1645/D Micromachined Electromechanical Sensors for Automotive Applications

Additional information relevant to Automotive Applications may be found in the following Motorola documents:

- * BDLCRM/AD Byte Data Link Controller Reference Manual
- * DL202/D IGBT – Insulated Gate Bipolar Transistor Device Data
- HC908AT32GRS/D MC68HC908AT32 General Release Specification

- * HC908AT60GRS/D MC68HC908AT60 General Release Specification
- SG267/D Rectifier Product Update

Computer Systems

- AN1207/D The MC145170 in Basic HF and VHF Oscillators

Additional information relevant to Computer Systems may be found in the following Motorola documents:

- * BR1756/D PCI Controller-less Modem Chip Set and Software
- EMDVPOC/D Embedded Developer Pocket Guide
- SG169/D Mixed-Signal Solutions from Communication Transmission & Access Systems Division
- SG171/D Fast Static RAM Division Product Update

Digital Signal Processing

Information relevant to Digital Signal Processing may be found in the following Motorola documents:

- BR348/D The Worldwide Technical Training Course Reference Guide & Schedule: January-June 1998
- BR1133/D 68K and ColdFire Family Product Portfolio Overview
- DSPNEWSL/D DSP News
- DSP56L811UM/AD DSP56L811 User's Manual
- DSP96002UM/AD DSP96002 IEEE Floating-Point Dual-Port Processor User's Manual
- SG171/D Fast Static RAM Division Product Update
- * SG182/D Wireless Messaging Systems Solutions Device Selector Guide

FETs and Power MOSFETs

- *AN1631/D Using PSPICE to Analyze Performance of Power MOSFETs in Step-Down, Switching Regulators Employing Synchronous Rectification

Additional information relevant to FETs and Power MOSFETs may be found in the following Motorola documents:

SG46/D	RF Products Selector Guide
SG265/D	Power MOSFETs Product Update
SG275/D	Small-Signal Operations: Surface Mount Packages

Instrumentation and Control

- AN1516/D Liquid Level Control Using a Motorola Pressure Sensor

Additional information relevant to Instrumentation and Control may be found in the following Motorola document:

SG169/D	Mixed-Signal Solutions from Communication Transmission & Access Systems Division
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Interfacing

see also Telecommunications

- *AN1724/D Implementing SCI Receive and Transmit Buffers in C
- *AN1725/D Initializing SDRAM Parameters for Motorola MPC106-Based Systems
- *AN1727/D Designing PCI 2.1-Compliant MPC106 Systems
- *AN1732/D A Universal Serial Bus Gamepad Device using the MC68HC05JB2

Additional information relevant to Interfacing may be found in the following Motorola documents:

BR1133/D	68K and ColdFire Family Product Portfolio Overview
*HC05JB2GRS/H	MC68HC05JB2/MC68HC705JB2 General Release Specification
*QMCSUPPLEMENT/AD	MC68MH360, MPC860MH and MPC860DH: A Supplement to the MC68360 and MPC860 User's Manuals
SG169/D	Mixed-Signal Solutions from Communication Transmission & Access Systems Division

Logic

CMOS

Information relevant to CMOS may be found in the following Motorola document:

DL203/D	Advanced High-Speed CMOS Data
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Low Power/Battery Applications

Information relevant to Low Power/Battery Applications may be found in the following Motorola documents:

*MCO RERM/AD	M•CORE Reference Manual
*MCO RESALES/D	M•CORE Architecture
*MMC2001RM/D	M•CORE MMC2001 Reference Manual
*MPC823UM/D	PowerPC MPC823 User's Manual

Memory

- AN1704/D Switch Fabric Implementation Using Shared Memory
- *AN1718/D A Serial Bootloader for Reprogramming the MC68HC912B32 Flash EEPROM
- *AN1722/D SDRAM System Design Using the MPC106

Additional information relevant to Memory may be found in the following Motorola document:

SG171/D	Fast Static RAM Division Product Update
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Microprocessors

8-bit MPU/MCU

- *AN1285/D Stepper Motor Control with an MC68HC11E9 Microcontroller
- *AN1633/D A "No Glue Logic" Method for Booting the MPA1000 via SPI
- *AN1638/D Offset Calibration of Gauge Pressure Sensor Using Parallel I/O Ports
- *AN1655/D ASB200 – Motorola Sensor Development Controller Board
- AN1716/D Using M68HC12 Indexed Indirect Addressing
- *AN1728/D Making Low-Distortion Waveforms with the MC68HC708MP16

* AN1730/D	Digital Amplification of an Analog Signal Using the MC68HC705J1A
* AN1732/D	A Universal Serial Bus Gamepad Device using the MC68HC05JB2
* AN1733/D	Implementing Caller ID Functionality in MC68HC(7)05 Applications
* AN1734/D	Pulse Width Modulation Using the 16-Bit Timer
* AN1736/D	Variations in the Motorola MC68HC05Px Family
* AN1738/D	Instruction Cycle Timing of MC68HC05JJ/JP Series Microcontrollers
* AN1740/D	Applications Using the Analog Subsystem of MC68HC05JJ/JP Series Microcontrollers
* AN1741/D	In-Circuit and Emulation Considerations for MC68HC05JJ/JP Series Microcontrollers
* AN1742/D	Programming the 68HC705J1A In-Circuit
* AN1743/D	Scrolling Message Software
* AN1744/D	Resetting Microcontrollers During Power Transitions
* AN1745/D	Interfacing the HC705C8A to an LCD Module
* EB283/D	C Macro Definitions for the MC68HC11C0
* EB284/D	C Macro Definitions for the MC68HC(7)11D3/D0
* EB285/D	C Macro Definitions for the MC68HC(7)11E20
* EB286/D	C Macro Definitions for the MC68HC11A8/A7/A1/A0
* EB288/D	C Macro Definitions for the MC68HC11ED0
* EB289/D	C Macro Definitions for the MC68HC11F1

Additional information relevant to 8-bit MPU/MCU may be found in the following Motorola documents:

* BDLCRM/AD BR348/D	Byte Data Link Controller Reference Manual The Worldwide Technical Training Course Reference Guide & Schedule: January-June 1998
* FLYR14/D	Computer-Controlled DC Motor Drives: System Development Tool Set
* HC05CT4GRS/D	MC68HC05CT4 General Release Specification
* HC05H12GRS/D	MC68HC(7)05H12 General Release Specification

* HC05JB2GRS/H	MC68HC05JB2/MC68HC705JB2 General Release Specification
* HC05L16GRS/D	MC68HC05L16/MC68HC705L16 General Release Specification
* HC05PL4GRS/H	MC68HC05PL4A, MC68HC05PL4B, MC68HC705PL4B General Release Specification
HC05RC18GRS/D	MC68HC05RC9/MC68HC05RC18 General Release Specification
* HC08AS20GRS/D	MC68HC08AS20 General Release Specification
* HC08KL8GRS/D	MC68HC08KL8 General Release Specification
* HC68VBIGRS/D	MC68HC68VBI General Release Specification
* HC705CT4GRS/D	MC68HC705CT4 General Release Specification
HC908AT32GRS/D	MC68HC908AT32 General Release Specification
* HC908AT60GRS/D	MC68HC908AT60 General Release Specification
* HC908MR24GRS/D	68HC908MR24 General Release Specification
M68HC05AG/AD	M68HC05 Applications Guide
M6805UM/AD3	M6805 HMOS / M146805 CMOS Family User's Manual
SG166/D	Advanced Microcontroller Division and Custom Microcontroller Solutions Division – Product Selection Guide
* SG182/D	Wireless Messaging Systems Solutions Device Selector Guide
SG419/D	EMU: European Microcontroller Update

16-bit MPU/MCU

* AN1280A/D	Using the Callable Routines in D-Bug12
* AN1718/D	A Serial Bootloader for Reprogramming the MC68HC912B32 Flash EEPROM
* EB183/D	Erasing and Programming the FLASH EEPROM on the MC68HC912B32

Additional information relevant to 16-bit MPU/MCU may be found in the following Motorola documents:

* BDLCRM/AD BR348/D	Byte Data Link Controller Reference Manual The Worldwide Technical Training Course Reference Guide & Schedule: January-June 1998
BR1133/D	68K and ColdFire Family Product Portfolio Overview
* CPU12RM/AD SG166/D	CPU12 Reference Manual Advanced Microcontroller Division and Custom Microcontroller Solutions Division – Product Selection Guide

Microprocessors: 16-bit MPU/MCU continued

* SG182/D	Wireless Messaging Systems Solutions Device Selector Guide
SG419/D	EMU: European Microcontroller Update

32-bit MPU/MCU

* AN1724/D	Implementing SCI Receive and Transmit Buffers in C
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Additional information relevant to 32-bit MPU/MCU may be found in the following Motorola documents:

BR348/D	The Worldwide Technical Training Course Reference Guide & Schedule: January-June 1998
BR729/D	Embedded Systems Source, 1997
BR1133/D	68K and ColdFire Family Product Portfolio Overview
COLDFIREFAM/D	ColdFire: Variable-Length RISC Processors
EMDVPOC/D	Embedded Developer Pocket Guide
M68020UM/AD	MC68020/MC68EC020 Microprocessors User's Manual
* MC68QH302SUPL/AD	MC68QH302: Supplement to the MC68302 Integrated Multiprotocol Processor User's Manual
MC68331UM/AD	MC68331 User's Manual
MC68840UM/AD	MC68840 Integrated Fiber Distributed Data Interface User's Manual
MCF5200PRM/AD	ColdFire Microprocessor Family Programmer's Reference Manual
* MCF5307UM/AD	MCF5307 ColdFire Integrated Microprocessor User's Manual
* QMCSUPPLEMENT/AD	MC68MH360, MPC860MH and MPC860DH: A Supplement to the MC68360 and MPC860 User's Manuals
SG166/D	Advanced Microcontroller Division and Custom Microcontroller Solutions Division – Product Selection Guide
SG171/D	Fast Static RAM Division Product Update
SG175/D	Networking Systems Division and Personal Computing Division: Product Information
* SG182/D	Wireless Messaging Systems Solutions Device Selector Guide
SG419/D	EMU: European Microcontroller Update

8-bit Peripherals**Information relevant to 8-bit Peripherals may be found in the following Motorola document:**

SG166/D	Advanced Microcontroller Division and Custom Microcontroller Solutions Division – Product Selection Guide
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16/32-bit Peripherals**Information relevant to 16/32-bit Peripherals may be found in the following Motorola documents:**

BR348/D	The Worldwide Technical Training Course Reference Guide & Schedule: January-June 1998
SG175/D	Networking Systems Division and Personal Computing Division: Product Information
SG419/D	EMU: European Microcontroller Update

PowerPC

* AN1722/D	SDRAM System Design Using the MPC106
* AN1725/D	Initializing SDRAM Parameters for Motorola MPC106-Based Systems
* AN1727/D	Designing PCI 2.1-Compliant MPC106 Systems

Additional information relevant to PowerPC may be found in the following Motorola documents:

BR348/D	The Worldwide Technical Training Course Reference Guide & Schedule: January-June 1998
* BR1724/D	PowerPC Resource Guide
EMDVPOC/D	Embedded Developer Pocket Guide
* MPC823RG/D	PowerPC MPC823 Pocket Guide
* MPC823UM/D	PowerPC MPC823 User's Manual
* QMCSUPPLEMENT/AD	MC68MH360, MPC860MH and MPC860DH: A Supplement to the MC68360 and MPC860 User's Manuals
SG166/D	Advanced Microcontroller Division and Custom Microcontroller Solutions Division – Product Selection Guide
SG171/D	Fast Static RAM Division Product Update
SG175/D	Networking Systems Division and Personal Computing Division: Product Information

M•CORE

Information relevant to M•CORE may be found in the following Motorola documents:

* MCORERM/AD	M•CORE Reference Manual
* MCORESALES/D	M•CORE Architecture
* MMC2001RM/D	M•CORE MMC2001 Reference Manual

Motor & Lighting Control

see also Thyristors

* AN1285/D	Stepper Motor Control with an MC68HC11E9 Microcontroller
AN1516/D	Liquid Level Control Using a Motorola Pressure Sensor
* AN1728/D	Making Low-Distortion Waveforms with the MC68HC708MP16
* AN1734/D	Pulse Width Modulation Using the 16-Bit Timer

Additional information relevant to Motor & Lighting Control may be found in the following Motorola documents:

* DL202/D	IGBT – Insulated Gate Bipolar Transistor Device Data
* FLYR14/D	Computer-Controlled DC Motor Drives: System Development Tool Set
* HC05H12GRS/D	MC68HC(7)05H12 General Release Specification
SG266/D	Bipolar Power Transistors Product Update

Mounting Techniques & Surface Mount

* AN4005/D	Thermal Management and Mounting Method for the PLD 1.5 RF Power Surface Mount Package
* EB209/D	Mounting Method for RF Power Leadless Surface Mount Transistors

Additional information relevant to Mounting Techniques & Surface Mount may be found in the following Motorola documents:

SG265/D	Power MOSFETs Product Update
SG266/D	Bipolar Power Transistors Product Update
SG275/D	Small-Signal Operations: Surface Mount Packages

Multimedia

Information relevant to Multimedia may be found in the following Motorola document:

* MPC823UM/D	PowerPC MPC823 User's Manual
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Networking

AN1704/D	Switch Fabric Implementation Using Shared Memory
* AN1732/D	A Universal Serial Bus Gamepad Device using the MC68HC05JB2

Additional information relevant to Networking may be found in the following Motorola documents:

* BDLCRM/AD	Byte Data Link Controller Reference Manual
* BR1729/D	MC92500 Asynchronous Transfer Mode Cell Processors
* BR1731/D	Integrated Solutions for ATM Systems
MC68840UM/AD	MC68840 Integrated Fiber Distributed Data Interface User's Manual
* QMCSUPPLEMENT/AD	MC68MH360, MPC860MH and MPC860DH: A Supplement to the MC68360 and MPC860 User's Manuals
SG169/D	Mixed-Signal Solutions from Communication Transmission & Access Systems Division
SG175/D	Networking Systems Division and Personal Computing Division: Product Information

Optoelectronics

* AN1743/D	Scrolling Message Software
* AN1745/D	Interfacing the HC705C8A to an LCD Module

Phase-Locked Loop

AN1207/D	The MC145170 in Basic HF and VHF Oscillators
AN1253/D	An Improved PLL Design Method Without ω_n and ζ

Additional information relevant to Phase-Locked Loop may be found in the following Motorola document:

* MC145220EVK/D	MC145220 Evaluation Board Manual
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Power

Power Supplies & Voltage Regulators

- *AN1631/D Using PSPICE to Analyze Performance of Power MOSFETs in Step-Down, Switching Regulators Employing Synchronous Rectification

Additional information relevant to Power Supplies & Voltage Regulators may be found in the following Motorola documents:

- *DL202/D IGBT – Insulated Gate Bipolar Transistor Device Data
 SG274/D Zener Operations
 SG378/D Linear Voltage Regulators

Power Device Characteristics

- *AN1631/D Using PSPICE to Analyze Performance of Power MOSFETs in Step-Down, Switching Regulators Employing Synchronous Rectification

Additional information relevant to Power Device Characteristics may be found in the following Motorola documents:

- DL110/D RF Device Data
 SG265/D Power MOSFETs Product Update
 SG266/D Bipolar Power Transistors Product Update
 SG267/D Rectifier Product Update
 SG274/D Zener Operations

Protection & Thermal Considerations

- *AN4005/D Thermal Management and Mounting Method for the PLD 1.5 RF Power Surface Mount Package

Additional information relevant to Protection & Thermal Considerations may be found in the following Motorola documents:

- SG267/D Rectifier Product Update
 SG274/D Zener Operations

Pressure, Gas & Acceleration Sensors

- AN1309/D Compensated Sensor Bar Graph Pressure Gauge
 AN1318/D Interfacing Semiconductor Pressure Sensors to Microcomputers
 AN1324/D A Simple Sensor Interface Amplifier

- AN1325/D Amplifiers for Semiconductor Pressure Sensors
 AN1513/D Mounting Techniques and Plumbing Options of Motorola's MPX Series Pressure Sensors
 AN1516/D Liquid Level Control Using a Motorola Pressure Sensor
 *AN1638/D Offset Calibration of Gauge Pressure Sensor Using Parallel I/O Ports
 *AN1640/D Reducing Accelerometer Susceptibility to BCI
 *AN1645/D Micromachined Electromechanical Sensors for Automotive Applications
 *AN1646/D Noise Considerations for Integrated Pressure Sensors
 *AN1655/D ASB200 – Motorola Sensor Development Controller Board
 *AN1660/D Compound Coefficient Pressure Sensor PSPICE Models

Additional information relevant to Pressure, Gas & Acceleration Sensors may be found in the following Motorola document:

- SG162/D Sensor Products Division

Quality and Reliability

Information relevant to Quality and Reliability may be found in the following Motorola document:

- BR1202/D Motorola Quality System Review Guidelines

Radio Applications

- AN1207/D The MC145170 in Basic HF and VHF Oscillators
 *AN1634/D MPA1000 Power Savings and Thermal Characteristics

Additional information relevant to Radio Applications may be found in the following Motorola document:

- SG46/D RF Products Selector Guide

RF

- *AN1602/D 3.6V and 4.8V GSM/DCS1800 Dual Band PA Application with DECT Capability Using Standard Motorola RFICs

*EB209/D Mounting Method for RF Power Leadless Surface Mount Transistors

Additional information relevant to RF may be found in the following Motorola documents:

DL110/D RF Device Data
 SG46/D RF Products Selector Guide
 SG275/D Small-Signal Operations: Surface Mount Packages
 SG384/D Motorola RF LDMOS Product Family

Small Signal Transistors & Diodes

Information relevant to Small Signal Transistors & Diodes may be found in the following Motorola documents:

SG274/D Zener Operations
 SG275/D Small-Signal Operations: Surface Mount Packages

Smart Card/Conditional Access

see also Microprocessors: 8-bit MPU/MCU

Information relevant to Smart Card/Conditional Access may be found in the following Motorola documents:

*BR1732/D Smart Chip: Technical Information
 *BR1734/D Smart Chip: The Smartcard brain at your Fingertips

Software & Programming

*AN1280A/D Using the Callable Routines in D-Bug12
 AN1716/D Using M68HC12 Indexed Indirect Addressing
 *AN1718/D A Serial Bootloader for Reprogramming the MC68HC912B32 Flash EEPROM
 *AN1724/D Implementing SCI Receive and Transmit Buffers in C
 *AN1732/D A Universal Serial Bus Gamepad Device using the MC68HC05JB2
 *AN1738/D Instruction Cycle Timing of MC68HC05JJ/JP Series Microcontrollers
 *AN1741/D In-Circuit and Emulation Considerations for MC68HC05JJ/JP Series Microcontrollers
 *AN1742/D Programming the 68HC705J1A In-Circuit

*EB183/D Erasing and Programming the FLASH EEPROM on the MC68HC912B32

Additional information relevant to Software & Programming may be found in the following Motorola documents:

BR348/D The Worldwide Technical Training Course Reference Guide & Schedule: January-June 1998
 BR729/D Embedded Systems Source, 1997
 EMDVPOC/D Embedded Developer Pocket Guide
 SG166/D Advanced Microcontroller Division and Custom Microcontroller Solutions Division – Product Selection Guide

Telecommunications

see also Interfacing

AN1207/D The MC145170 in Basic HF and VHF Oscillators
 *AN1602/D 3.6V and 4.8V GSM/DCS1800 Dual Band PA Application with DECT Capability Using Standard Motorola RFICs
 *AN1634/D MPA1000 Power Savings and Thermal Characteristics
 AN1704/D Switch Fabric Implementation Using Shared Memory
 *AN1724/D Implementing SCI Receive and Transmit Buffers in C
 *AN1733/D Implementing Caller ID Functionality in MC68HC(7)05 Applications

Additional information relevant to Telecommunications may be found in the following Motorola documents:

BR348/D The Worldwide Technical Training Course Reference Guide & Schedule: January-June 1998
 BR1133/D 68K and ColdFire Family Product Portfolio Overview
 BR1196/D CODEC. Plug In. WorldWide.
 *BR1729/D MC92500 Asynchronous Transfer Mode Cell Processors
 *BR1731/D Integrated Solutions for ATM Systems
 *BR1752/D Qorus Development Kit: Get a Clear Picture of What Qorus Video Conferencing Technology Can Do
 *BR1753/D Motorola Analog Modem Systems
 *BR1754/D External/Embedded Modem Chip Set and Software
 *BR1755/D ISA Controller-less Modem Chip Set and Software

Telecommunications continued

* BR1756/D	PCI Controller-less Modem Chip Set and Software
* HC05CT4GRS/D	MC68HC05CT4 General Release Specification
* HC05PL4GRS/H	MC68HC05PL4A, MC68HC05PL4B, MC68HC705PL4B General Release Specification
* HC08AS20GRS/D	MC68HC08AS20 General Release Specification
* HC705CT4GRS/D	MC68HC705CT4 General Release Specification
* MC68QH302SUPL/AD	MC68QH302: Supplement to the MC68302 Integrated Multiprotocol Processor User's Manual
* QMCSUPPLEMENT/AD	MC68MH360, MPC860MH and MPC860DH: A Supplement to the MC68360 and MPC860 User's Manuals
SG46/D	RF Products Selector Guide
SG169/D	Mixed-Signal Solutions from Communication Transmission & Access Systems Division
SG171/D	Fast Static RAM Division Product Update
SG175/D	Networking Systems Division and Personal Computing Division: Product Information
* SG182/D	Wireless Messaging Systems Solutions Device Selector Guide

Thyristors and Triacs

AN1516/D	Liquid Level Control Using a Motorola Pressure Sensor
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Additional information relevant to Thyristors and Triacs may be found in the following Motorola document:

SG268/D	Thyristor Product Update
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TV and Video

* AN1730/D	Digital Amplification of an Analog Signal Using the MC68HC705J1A
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Additional information relevant to TV and Video may be found in the following Motorola documents:

* BR1752/D	Qorus Development Kit: Get a Clear Picture of What Qorus Video Conferencing Technology Can Do
HC05RC18GRS/D	MC68HC05RC9/MC68HC05RC18 General Release Specification
* HC68VBIGRS/D	MC68HC68VBI General Release Specification

SG46/D	RF Products Selector Guide
SG267/D	Rectifier Product Update

All Products and Application Areas

BR1202/D	Motorola Quality System Review Guidelines
* BR1494/D	Semiconductor Sales and Product Training Solutions Self Study Guide
SG73/D	Master Selection Guide
SG379/D	North America Sales and Distribution Price List

Applications Documents

Alphanumeric List

The documents listed here have been added or revised since BR101/D Rev 28

AN1207/D	The MC145170 in Basic HF and VHF Oscillators	* AN1645/D	Micromachined Electromechanical Sensors for Automotive Applications
AN1253/D	An Improved PLL Design Method Without ω_n and ζ	* AN1646/D	Noise Considerations for Integrated Pressure Sensors
* AN1280A/D	Using the Callable Routines in D-Bug12	* AN1655/D	ASB200 – Motorola Sensor Development Controller Board
* AN1285/D	Stepper Motor Control with an MC68HC11E9 Microcontroller	* AN1660/D	Compound Coefficient Pressure Sensor PSPICE Models
AN1309/D	Compensated Sensor Bar Graph Pressure Gauge	AN1704/D	Switch Fabric Implementation Using Shared Memory
AN1318/D	Interfacing Semiconductor Pressure Sensors to Microcomputers	AN1716/D	Using M68HC12 Indexed Indirect Addressing
AN1324/D	A Simple Sensor Interface Amplifier	* AN1718/D	A Serial Bootloader for Reprogramming the MC68HC912B32 Flash EEPROM
AN1325/D	Amplifiers for Semiconductor Pressure Sensors	* AN1722/D	SDRAM System Design Using the MPC106
AN1513/D	Mounting Techniques and Plumbing Options of Motorola's MPX Series Pressure Sensors	* AN1724/D	Implementing SCI Receive and Transmit Buffers in C
AN1516/D	Liquid Level Control Using a Motorola Pressure Sensor	* AN1725/D	Initializing SDRAM Parameters for Motorola MPC106-Based Systems
* AN1602/D	3.6V and 4.8V GSM/DCS1800 Dual Band PA Application with DECT Capability Using Standard Motorola RFICs	* AN1727/D	Designing PCI 2.1-Compliant MPC106 Systems
* AN1631/D	Using PSPICE to Analyze Performance of Power MOSFETs in Step-Down, Switching Regulators Employing Synchronous Rectification	* AN1728/D	Making Low-Distortion Waveforms with the MC68HC708MP16
* AN1633/D	A "No Glue Logic" Method for Booting the MPA1000 via SPI	* AN1730/D	Digital Amplification of an Analog Signal Using the MC68HC705J1A
* AN1634/D	MPA1000 Power Savings and Thermal Characteristics	* AN1732/D	A Universal Serial Bus Gamepad Device using the MC68HC05JB2
* AN1638/D	Offset Calibration of Gauge Pressure Sensor Using Parallel I/O Ports	* AN1733/D	Implementing Caller ID Functionality in MC68HC(7)05 Applications
* AN1640/D	Reducing Accelerometer Susceptibility to BCI	* AN1734/D	Pulse Width Modulation Using the 16-Bit Timer
* AN1641/D	Generating Multiple Internal Clocks in the Motorola Programmable Array	* AN1736/D	Variations in the Motorola MC68HC05Px Family
		* AN1738/D	Instruction Cycle Timing of MC68HC05JJ/JP Series Microcontrollers

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- * AN1740/D Applications Using the Analog Subsystem of MC68HC05JJ/JP Series Microcontrollers
 - * AN1741/D In-Circuit and Emulation Considerations for MC68HC05JJ/JP Series Microcontrollers
 - * AN1742/D Programming the 68HC705J1A In-Circuit
 - * AN1743/D Scrolling Message Software
 - * AN1744/D Resetting Microcontrollers During Power Transitions
 - * AN1745/D Interfacing the HC705C8A to an LCD Module
 - * AN4005/D Thermal Management and Mounting Method for the PLD 1.5 RF Power Surface Mount Package
 - * EB183/D Erasing and Programming the FLASH EEPROM on the MC68HC912B32
 - * EB209/D Mounting Method for RF Power Leadless Surface Mount Transistors
 - * EB283/D C Macro Definitions for the MC68HC11C0
 - * EB284/D C Macro Definitions for the MC68HC(7)11D3/D0
 - * EB285/D C Macro Definitions for the MC68HC(7)11E20
 - * EB286/D C Macro Defenitions for the MC68HC11A8/A7/A1/A0
 - * EB288/D C Macro Definitions for the MC68HC11ED0
 - * EB289/D C Macro Definitions for the MC68HC11F1



Data Books

The documents listed here have been added or revised since BR101/D Rev 28

RF Device Data

Rev 9

Provides data sheet information on Motorola's extensive range of RF products. Products are categorised into three main sections – Discrete Transistors, Monolithic Integrated Circuits and Amplifiers – and a comprehensive Selector Guide lists the devices under a variety of application, frequency band and package classifications. Case dimensions and a competitor cross reference are included – the cross reference lists functionally similar products under a 'closest replacement' heading in order to accommodate the unique products that now exist as a result of new technologies and packaging concepts.

Order by: DL110/D

IGBT – Insulated Gate Bipolar Transistor Device Data

Motorola's IGBT portfolio includes devices for automotive applications, lighting, motor drives and power conversion. This data book presents information on the devices in the form of data sheets. It also includes an alphanumeric listing, selector guides, symbols and definitions, and more than 100 pages of theory and applications information.

Order by: DL202/D

Advanced High-Speed CMOS Data

Rev 2

Motorola's VHC Advanced High-Speed CMOS logic family is designed for operation on 2V to 5.5V supplies. When operating at supply voltages less than 5V the devices

feature 5V-tolerant inputs to aid 3V-5V mixed system designs, and with speeds more than 60% faster than HCMOS, VHC is the perfect family for new, low-cost, low-power designs. Excellent noise performance also makes VHC a good replacement for FACT logic, without sacrificing speed. This data book contains full data sheets on the first 18 devices to be released.

Order by: DL203/D





Selector Guides and Application Literature

The documents listed here have been added or revised since BR101/D Rev 28

Embedded Systems Source, 1997

Rev 5

Lists vendors of hardware and software products supporting the M68000 MPU family. This latest edition includes hardware and software development tools as well as operating systems. Products are grouped into Microprocessors; Emulators and Logic Analyzers; Real-Time Operating Systems; Language Development Tools; Target Board-Level Products and Evaluation Boards; and Peripherals.

Order by: BR729/D

Motorola Quality System Review Guidelines

Rev 5

Motorola's Quality System Review (QSR) is a means by which the company evaluates the continuing health of the Quality System in each of its major business units and suppliers. It defines a vision of how Motorola's business should be conducted, sets a common goal of perfection, and provides an awareness of Quality System requirements across the whole organisation. The QSR Guidelines are provided to train the reviewers, aid the understanding of each review question and assist in the scoring process. They may also be of interest to Motorola's quality conscious customers.

Order by: BR1202/D

PowerPC Resource Guide

A guide to PowerPC hardware and software products from Motorola, IBM and third party developers. Sections include Microprocessors and Peripherals, Hardware and Software Development Tools, Board Level Products & Evaluation Boards, and Consulting Services. Lists worldwide sales and distribution offices.

Order by: BR1724/D

DSP News

Rev 11, 4Q97

Quarterly newsletter issued by Motorola's Digital Signal Processing Division to inform the digital signal processing community about Motorola's DSP products.

Order by: DSPNEWSL/D

Embedded Developer Pocket Guide

Rev 4

This Pocket Guide contains a listing of virtually all Third Party Embedded Developers supporting Motorola's 68K, ColdFire and PowerPC embedded processors through the High Performance Embedded System Division's (HPESD) Developer Program. This program comprises more than 50 third party developers, and makes available the broadest possible portfolio of development tools to enable Motorola's customers to deliver innovative, world-class products. Each page of this Guide provides an overview of the developer, with contact details and a listing of development tools and supported MCUs.

Order by: EMDVPOC/D

RF Products Selector Guide

Rev 17

This publication presents RF products of Motorola Phoenix, Motorola Toulouse (France), and Motorola Hong Kong. The RF products are categorized by Power FETs, Power Bipolar, Small Signal Bipolar, Integrated Circuits, and Low and High Power Amplifiers. Includes a list of relevant applications literature, case outlines, and an industry cross reference information with an indication of devices not recommended for new designs.

Order by: **SG46/D**

Master Selection Guide

Rev 17

The Master Selection Guide lists all of Motorola's semiconductor products – the broadest product line in the industry. It provides the engineer with a means of first-order selection of devices for specific applications. Sections include ASICs; Microcomputer Components; TTL, ECL, CMOS and Special Logic; Linear/Interface Circuits; Discrete and Military Products; the presentation is appropriate to the product families, but generally follows the standard Selector Guide and Cross Reference format. In addition, a Device Index, Subject Cross Reference and comprehensive Contents section allow the efficient location of specific products.

Order by: **SG73/D**

Sensor Products Division

Rev 26, 3Q98

This quarterly publication details the pressure and acceleration sensors and evaluation tools available from the Sensors Products Division.

Order by: **SG162/D**

Advanced Microcontroller Division and Custom Microcontroller Solutions Division – Product Selection Guide

Rev 14, 2Q98

This selector guide overviews the MPC500 family, the 32-bit M68300 Family, the 16-bit M68HC16 Family, and the 8-bit M68HC11, M68HC12 and M6801 Families of MCUs, as well as associated evaluation and development products.

Order by: **SG166/D**

Mixed-Signal Solutions from Communication Transmission & Access Systems Division

Rev 26, 3Q98

This selector guide covers new and planned products from the Communication Transmission & Access Systems Division. Sections include ATM Circuits, Distributive Intelligent Controls, DTMF Receiver/Transmitter, High-Speed Modem Chip Sets, Interface Circuits, ISDN, Modem Functions, UDLT, Voice and Data Coding, LonWorks Support Tools and Development Tools.

Order by: **SG169/D**

Fast Static RAM Division Product Update

Rev 23, 2Q98

This selector guide provides an overview of Motorola's fast-growing FSRAM product line. Included are synchronous, asynchronous and FSRAM modules.

Order by: **SG171/D**

Networking Systems Division and Personal Computing Division: Product Information

Rev 8, 2Q98

This selector guide lists the devices in Motorola's PowerPC microprocessor family, including devices for embedded applications, plus 68K Networking and Communications devices and development tools. Includes package illustrations, part number breakdown, and a table of available documentation.

Order by: **SG175/D**

Wireless Messaging Systems Solutions Device Selector Guide

Rev 2, 2Q98

This guide is an easy-to-use directory to the extensive selection of semiconductors and modules for the design and development of the next generation of wireless messaging systems. It includes existing product lines, devices proposed for the immediate future, and a list of Motorola's more popular web sites.

Order by: **SG182/D**

Power MOSFETs Product Update

Rev 19, 3Q98

This quarterly publication details the latest products available in a wide range of packages from the TMOS Power Products Operation.

Order by: **SG265/D**

Bipolar Power Transistors Product Update

Rev 18, 3Q98

This quarterly selector guide details the latest products available from the Bipolar Power Products Operation, including Plastic TO-225AA, TO-220AB, isolated TO-220, metal TO-204AA, surface mount products, plus switchmode, lamp ballast and CRT deflection devices.

Order by: **SG266/D**

Rectifier Product Update

Rev 18, 3Q98

This quarterly selector guide details the broad range of devices available from the Rectifier Products Operation. Product categories include Schottky and Ultrafast Rectifiers in surface mount, axial, TO-220, TO-218, and TO-247 packages, plus Powertap II and Fast Recovery Rectifiers.

Order by: **SG267/D**

Thyristor Product Update

Rev 16, 3Q98

This quarterly selector guide details the high performance SCRs, Triacs and Surge Suppressors available from Motorola's Power Products Division.

Order by: **SG268/D**

Zener Operations

Rev 16, 3Q98

This quarterly publication details the Transient Voltage Suppressors and surface mount zeners available from the Optoelectronic and Signal Products Division.

Order by: **SG274/D**

Small-Signal Operations: Surface Mount Packages

Rev 15, 3Q98

This quarterly publication details the wide range of small-signal surface mount devices available from the Optoelectronic and Signal Products Division.

Order by: **SG275/D**

Linear Voltage Regulators

Rev 2

A quick reference selector guide to Motorola's fixed and adjustable linear voltage regulators, showing principal characteristics as an aid to device selection.

Order by: **SG378/D**

North America Sales and Distribution Price List

Rev 9, 11 July 1998

This guide lists North American suggested resale prices for Motorola commercial components and development systems. A Quick Reference lists new devices, deleted devices and lifetime buy products. Includes Motorola Sales Offices, standard policies and disclaimers, and software licenses.

Order by: **SG379/D**

Motorola RF LDMOS Product Family

Rev 3

Motorola's LDMOS (Laterally Diffused Metal Oxide Silicon) process is fast becoming the technology of choice in new communications products, making high power, high frequency RF amplifier designs simpler and more cost effective. This selector guide summarizes the devices available in the areas of RF High Power Transistors, Discrete Transmitter Devices for battery applications, RF Amplifier Modules, and RF Monolithic ICs.

Order by: **SG384/D**

EMU: European Microcontroller Update

Rev 5

Provides timely information and a summary of the features of Motorola's CSIC MCU and MCU families, together with European training courses, literature lists, voltage/speed/temperature options, development tools and package options.

Order by: SG419/D



User's Manuals

The documents listed here have been added or revised since BR101/D Rev 28

Byte Data Link Controller Reference Manual

The Byte Data Link Controller (BDLC) is a serial communication module which allows the user to send and receive messages across an SAE J1850 serial communication network. The user's software handles each transmitted or received message on a byte-by-byte basis, while the BDLC performs the network access, arbitration, message framing and error detection. This manual is intended as an aid to the development of software that uses the BDLC to perform SAE J1850 communication; some implementations of the module may provide enhanced capabilities and software designers should also refer to the MCU specification.

Order by: BDLCRM/AD

CPU12 Reference Manual

Rev 1

The CPU12 is a high-speed, 16-bit processing unit that has a programming model identical to that of the industry standard M68HC11 CPU. Its instruction set is a proper superset of the M68HC11 instruction set, and HC11 source code is accepted by CPU12 assemblers without change. It offers an extensive set of indexed addressing capabilities in addition to the addressing modes found in other Motorola MCUs. The main goal of this manual is to provide professionals and students in electronic design and software development with the information necessary to implement control systems using M68HC12 devices.

Order by: CPU12RM/AD

DSP56L811 User's Manual

Rev 1

The DSP56L811 is a member of the DSP56800 family of core-based DSPs. This general purpose DSP combines processing power with configuration flexibility, making it a cost-effective solution for both signal processing and control applications. It uses an MPU-style, general purpose 16-bit DSP core plus program and data memories. This manual describes the DSP56L811, its memory, operating modes and peripheral modules, and should be read in conjunction with DSP56800FAM/AD, the DSP56800 Family Manual, which describes the CPU, programming models and instruction set details.

Order by: DSP56L811UM/AD

MC68HC05CT4 General Release Specification

Rev 2.0

The MC68HC05CT4 is a 44-pin member of the M68HC05 family of microcontrollers and is intended for cordless telephone applications. The memory map includes 5376 bytes of on-chip ROM and 256 bytes of RAM. The MCU has three 8-bit I/O ports, one with pullup options and keyscan capability, and one 7-bit I/O port. Other features include a bird core, bird timer, serial synchronous interface (SSI), 16-bit timer, dual 60MHz PLL, a pulse width modulator and an on-chip COP watchdog circuit. This specification presents the technical details.

Order by: HC05CT4GRS/D

MC68HC(7)05H12 General Release Specification

Rev 0.0

The MC68HC(7)05H12 microcomputer is a member of the 8-bit M68HC05 family. It contains an on-chip oscillator, 256 bytes of user RAM, monitor ROM, user ROM or EPROM, parallel I/O, one core timer, two 16-bit programmable timers, COP watchdog system, SCI and SPI, a 4-channel A/D converter and an 8-channel 8-bit PWM for control of H-bridge drivers, with on-chip power driver circuitry. This specification presents the technical details.

Order by: HC05H12GRS/D

MC68HC05JB2/MC68HC705JB2 General Release Specification

Rev 1.0

The MC68HC05JB2 MCU is a member of the low cost M68HC05 Family, and is designed specifically for use in applications where a Universal Serial Bus (USB) is required. Features include a fully compliant Low Speed USB with one control and 2 interrupt endpoints; a 3.3V output pin for USB pullups; a multi-function timer and 16-bit input capture/output compare timer; and 11 bidirectional I/O pins with a variety of programmable features. This specification provides the technical details.

Order by: HC05JB2GRS/H

MC68HC05L16/MC68HC705L16 General Release Specification

Rev 2.0

The MC68HC05L16 is an 80-pin Quad Flat Pack MCU in the M68HC05 Family, offering sophisticated on-chip peripheral functions. It has five parallel ports, a timebase circuit, 8 and 16-bit timers, COP watchdog timer, LCD drivers and a Simple Serial Peripheral Interface (SSPI). The memory map includes 16k bytes of user ROM and 512 bytes of RAM. This specification presents the technical details.

Order by: HC05L16GRS/D

MC68HC05PL4A, MC68HC05PL4B, MC68HC705PL4B General Release Specification

Rev 1.1

The MC68HC05PL4A and MC68HC05PL4B are part of the M68HC05 HCMOS MCU family, and are designed specifically for use as a pair in the handset and base set of cost-sensitive CTO and CT1 analog cordless phones. Features include an industry standard M68HC05 core, built-in low frequency RC oscillator, 256 bytes of user RAM, 4k bytes of user ROM, ROM security, 15 bidirectional I/O lines (23 in MC68HC05PL4B) with keyboard interrupts and high current sink pins, and a multiplexed DTMF output with 6-bit D/A converter. This specification presents the technical details.

Order by: HC05PL4GRS/H

MC68HC05RC9/MC68HC05RC18 General Release Specification

Rev 2.0

The MC68HC05RC18 MCU is a low-cost, general purpose member of the M68HC05 family that is designed for remote control applications. On-chip peripherals include a Carrier Modulator Transmitter (CMT). There are 20 I/O lines (eight having keyscan logic and pullups) and a low-power reset pin. This specification provides full technical details.

Order by: HC05RC18GRS/D

MC68HC08AS20 General Release Specification

Rev 3.0

The MC68HC08AS20 is a member of the low-cost M68HC08 family of high-performance 8-bit microcontrollers. Features include 640 bytes of RAM, 20480 bytes of on-chip ROM, ROM data security, SPI and SCI, clock generator, a 16-bit 6-channel timer interface module, an 8-bit 15-channel A/D converter and an SAE J1850 Byte Data Link Controller Digital module (BDLC-D). This specification presents the technical details.

Order by: HC08AS20GRS/D

MC68HC08KL8 General Release Specification

Rev 1.0

The MC68HC08KL8 is a member of the low-cost M68HC08 family of high-performance 8-bit microcontrollers. It is fully compatible with the Universal Serial Bus (USB) Specification rev. 1.0, with an on-chip USB transceiver and 3.3V regulator, USB data control logic for packet decoding/generation, CRC checking and generation, and NRZI encoding and decoding. Features include 368 bytes of RAM, 8k bytes of on-chip ROM, ROM data security, 39 general purpose I/O pins, an 8-bit keyboard interrupt port and 8 LED direct drive pins. This specification presents the technical details.

Order by: HC08KL8GRS/D

MC68HC68VBI General Release Specification

Rev 3.0

The Motorola MC68HC68VBI is a low cost HCMOS video peripheral capable of decoding user-definable vertical blanking interval (VBI) data formats from NTSC, PAL or SECAM video signals. A fully duplexed serial peripheral interface (SPI) or Motorola 68HC(7)11 multiplexed expansion bus allows interface with the host processor. Features include data extraction in most formats, specialized PDC mode, internal PLL frequency generator and quasi-horizontal sync detection. This specification presents the technical details.

Order by: HC68VBIGRS/D

MC68HC705CT4 General Release Specification

Rev 2.0

The MC68HC705CT4 MCU is a 44-pin member of the M68HC05 Family that is intended for use in cordless telephone applications. Features include three 8-bit I/O ports, one with pullup options and keyscan capability, and one 7-bit I/O port; 5136 bytes of user EPROM, 240 bytes of boot ROM and 256 bytes of RAM; Synchronous Serial I/O (SSI); and dual 60MHz clock. This specification provides the technical details.

Order by: HC705CT4GRS/D

MC68HC908AT32 General Release Specification

Rev 2.0

The MC68HC908AT32 is a member of the low-cost M68HC08 family of high-performance 8-bit microcontrollers. It is designed to emulate two separate automotive MCU families, the MC68HC08AZ32 and the MC68HC08AS20. Features include 32 Kbytes of FLASH ROM with data security, 512 bytes of EEPROM with security option, 1 Kbyte of RAM, SPI and SCI, and system protection features. The two versions include different additional timer and ADC modules, plus a Motorola Scalable CAN Controller or an SAE J1850 Byte Data Link Controller Digital module. This specification presents the technical details and demonstrates the unique qualities of both families.

Order by: HC908AT32GRS/D

MC68HC908AT60 General Release Specification

Rev 1.0

The MC68HC908AT60 is a member of the low-cost M68HC08 family of high-performance 8-bit microcontrollers. It is designed to emulate two separate automotive MCU families, the MC68HC08AZxx and the MC68HC08ASxx. Features include 60 Kbytes of FLASH ROM with data security, 1 Kbyte of EEPROM with security option, 2 Kbytes of RAM, SPI and SCI, 8-bit 15-channel A/D converter, 16-bit 6-channel timer interface, periodic interrupt timer and system protection features. This specification presents the technical details and demonstrates the unique qualities of both families.

Order by: HC908AT60GRS/D

68HC908MR24 General Release Specification

Rev 1.0

The 68HC908MR24 is a member of the low-cost, high-performance M68HC08 family of 8-bit MCUs. Features include 8MHz internal bus frequency, 24 Kbytes of FLASH Electrically Erasable ROM with security, on-chip programming firmware for use with host PC, 12-bit 6-channel center or edge-aligned pulse width modulator, Clock Generator Module, SCI, SPI, 16-bit 4-channel and 16-bit 2-channel timer interface modules, and 10-bit 10-channel ADC. This specification presents the technical details.

Order by: HC908MR24GRS/D

M•CORE Reference Manual

The architecture of the 32-bit M•CORE microRISC engine has been designed for high performance and cost-sensitive embedded control applications, with particular emphasis on reduced system power consumption. M•CORE is a streamlined execution engine providing many of the same performance enhancements as mainstream RISC designs, while lowering the memory bandwidth needed to sustain a high rate of instruction execution. This manual provides an overview of the processor, and full details of the registers and instruction set, for system software developers and application programmers developing products for M•CORE-based systems.

Order by: MCORERM/AD

M68HC05 Applications Guide

Rev 3

Assumes no knowledge of microcontrollers and no MCU applications experience. Provides a basic but thorough introduction to the features and operation of microcontrollers, followed by a chapter describing the architecture, addressing modes, instruction set, communications and timer of the MC68HC705C8. The final section traces the development of the hardware and software for a practical application (a home thermostat project) with circuit diagram and full software listing. Full M68HC05 instruction set details are given in an appendix, and the book ends with 50 review questions based on the guide.

Order by: M68HC05AG/AD

M6805 HMOS / M146805 CMOS Family User's Manual

Rev 3

Provides users with concise information on Motorola's M6805 HMOS and M146805 CMOS microcomputer families. Thorough descriptions and instructions are given, beginning with a general description and introduction to the families, and including details of the hardware and software features illustrated with many 'standard' applications. More advanced applications are covered by reprinted application notes. The manual concludes with detailed definitions of each instruction, arranged in alphanumeric order, with a cycle-by-cycle operation summary.

Order by: M6805UM/AD3

MC68020/MC68EC020 Microprocessors User's Manual

Rev 2

The MC68020 was the first full 32-bit implementation of Motorola's M68000 family. It is joined by the MC68EC020, an economical version designed for embedded controller (EC) applications. This User's Manual describes the capabilities, operation and programming of the two devices, highlighting differences where applicable. An introduction provides an overview of the devices and their instruction sets. Other sections include Processing States, Signal Description, On-Chip Cache, Bus Operation, Exception Processing, Coprocessor Interface, Instruction Timing, Applications Information, and electrical and mechanical data.

Order by: M68020UM/AD

MC68QH302: Supplement to the MC68302 Integrated Multiprotocol Processor User's Manual

This supplement to the MC68302 User's Manual highlights implementation-specific features of the MC68QH302 quad HDLC integrated multiprotocol processor. The MC68QH302 supports a total of four independent communication channels, handling two HDLC or transparent channels on SCCI.

Order by: MC68QH302SUPL/AD

MC68331 User's Manual

Rev 1

The MC68331 is a 32-bit integrated microcontroller in the M68300 Family, combining high-performance data manipulation capabilities with powerful peripheral subsystems. This manual includes sections describing the input and output signals; the submodules of the System Integration Module (SIM); timing, exception processing and arbitration for the external bus; the Queued Serial Module (QSM); and overviews of the MC68020-based CPU32 processor, the General Purpose Timer (GPT) and available emulation systems. It includes electrical and mechanical data.

Order by: MC68331UM/AD

MC68840 Integrated Fiber Distributed Data Interface User's Manual

Rev 1

FDDI is a fibre-optic-based, token ring local area network standard developed to accommodate rings of up to 1000 stations and a total ring length of 200km, operating at speeds up to 100Mbps. This ANSI standard specifies the Media Access Control (MAC) layer, the Physical (PHY) layer, the Physical Medium Dependent function and the Station Management function. The MC68840 implements the MAC and PHY layers. This manual provides an overview of the device, plus full descriptions of the functional blocks, registers, ports, external signals and test operations. Includes two practical examples to illustrate the design process.

Order by: MC68840UM/AD

MC145220 Evaluation Board Manual

Rev 2

The MC145220EVK makes it easy to evaluate features of the MC145220 and to build PLLs to meet specific requirements. It is controlled through menu driven software operating on an IBM PC or compatible, and connects to the printer port of the PC. Up to three different EVKs may be connected simultaneously. This manual describes the EVK hardware, the PC interface and software, and provides a full summary of the commands.

Order by: MC145220EVK/D

ColdFire Microprocessor Family Programmer's Reference Manual

Rev 1.0

This manual contains information about the software instructions used by the ColdFire 5200 microprocessors. It includes sections on the addressing capabilities, exception processing, timing, and on the instructions themselves in both summary and alphanumeric page-per-instruction format.

Order by: MCF5200PRM/AD

MCF5307 ColdFire Integrated Microprocessor User's Manual

The ColdFire processor core is designed for embedded control applications. Its architecture uses variable-length RISC instruction set technology to give new levels of price and performance to cost-sensitive, high-volume markets; denser binary code requires less memory for a given

application. The MCF5307 integrated microprocessor combines a ColdFire core with a Multiply-Accumulate (MAC) unit, DRAM controller, timers, parallel and serial interfaces, and system integration. These on-chip functions greatly reduce the time required for typical system design and implementation. This User's Manual describes the programming, capabilities and operation of the MCF5307.

Order by: MCF5307UM/AD

M•CORE MMC2001 Reference Manual

The 32-bit M•CORE microRISC engine represents a new family of microprocessor core products. It provides many of the same performance enhancements as mainstream RISC designs, but the processor architecture has been designed for high-performance and cost-sensitive embedded control applications, with particular emphasis on reduced system power consumption. This reference manual describes the CPU, memory map, signals, ROM module, Static RAM module, External Interface Module, Clock Module and low power modes, Timer/Reset Module, Interrupt Controller, UART, SPI, Keypad Port, PWM and OnCE Debug Module. A Programming Reference is provided in an appendix.

Order by: MMC2001RM/D

PowerPC MPC823 Pocket Guide

This convenient pocket guide contains design guidelines, the memory map, list of registers, instructions and list of external signals for the MPC823 microprocessor. The lists include cross references to the MPC823 User's Manual.

Order by: MPC823RG/D

PowerPC MPC823 User's Manual

The MPC823 PowerPC microprocessor is a versatile, one-chip integrated microprocessor and peripheral combination that can be used in a variety of portable electronic products; it excels in low-power image capture and personal communication products. It is essentially a low cost version of the MPC821, enhanced with additional communication and display capabilities. These additional features are provided by a specialized RISC processor that can perform signal processing functions for image compression and decompression, and which supports six serial channels. This substantial User's Manual discusses the operation, possible configurations, and specifications of the MPC823.

Order by: MPC823UM/D

MC68MH360, MPC860MH and MPC860DH: A Supplement to the MC68360 and MPC860 User's Manuals

The standard QUICC family members work in Time Division Multiplexed (TDM) applications but can only support one logical channel per Serial Communication Controller (SCC). The QMC (QUICC Multichannel Controller) protocol emulates up to 64 logical channels within one SCC using the same TDM physical interface. The QMC parts – MC68MH360, MPC860MH and MPC860DH – are pin-compatible with their respective family members and can be used in identical applications with minor adjustments. This manual provides an overview of the protocol and describes the use and operation of the devices.

Order by: QMCSUPPLEMENT/AD



Technical Data Services

Scattering Parameter Library

Rev 1

Contains Scattering Parameter (S-Parameter) files for most of Motorola's RF linear transistors. The files are presented in Touchstone™ format suitable for use with computer aided design (CAD) programs that operate on IBM compatible computers. The program comes in a 5.25" floppy disk. Over 600 files are contained in the disk representing transistors operating at specific bias conditions.

Order by: DK105/D

Scattering Parameter Plotting Utility

Rev 1

An IBM compatible computer disk (5.25" floppy) that permits the user to view S-Parameter files on a VGA monitor. Two port S-parameters are displayed on a Smith® Chart as a function of frequency. One can also view stability circles, f_t vs frequency and G_{MAX} vs frequency as well as convert S-Parameters to H-, Y- or Z-Parameters.

Order by: DK106/D

Impedance Matching Program

This 5.25" IBM compatible disk contains a specialized form of CAD specifically developed for RF power amplifier circuit design. Its data base contains input and output impedances for most of Motorola's RF power transistors and allows the user to match these impedances manually by means of a variety of matching elements. The impedances and the results of the matching elements are displayed on a Smith® Chart plot that allows the user to see graphically what effects are created by his/her choice of matching components

Order by: DK107/D

SPICE Disk for AN1043/D, 3.5 (Mac)

The TMOS Power MOSFET Library, version 2.0, which has been created to simplify power dissipation simulation using SPICE. Supporting documentation is provided by AN1043/D: SPICE Model for TMOS Power MOSFETs.

Order by: DK202/D

PLL Frequency Planning Disk

A Motorola *InterActiveApNote*™ for PLL Frequency Planning, containing software based on a Microsoft Excel spreadsheet, and an Application Note.

Order by: DK305/D

PLL Lock-in Time Analysis Disk

A Motorola *InterActiveApNote*™ for PLL Lock-in Time Analysis, containing software based on a Microsoft Excel spreadsheet, and an Application Note.

Order by: DK306/D

PLL Frequency Domain Analysis Disk

A Motorola *InterActiveApNote*™ for PLL Frequency Domain Analysis, containing software based on a Microsoft Excel spreadsheet, and an Application Note.

Order by: DK307/D

Master Selection Guide

Rev 17

For the design engineer, the Motorola Master Selection Guide is perhaps the most important single document for the identification and preliminary selection of components

for circuit and system designs. Within its pages is a complete listing and description of Motorola semiconductor devices currently in general use, and those recommended for new designs. It serves two purposes:

1. It lists all standard products in the vast Motorola semiconductor inventory for rapid identification.
2. It divides this total product offering into a variety of major product categories, with sufficient technical information to permit an intelligent first-order evaluation as to the most suitable devices for a specific application.

Order by: SG73/D

THIS BOOK IS NO LONGER PUBLISHED IN PRINTED FORM BUT IS AVAILABLE ON MOTOROLA'S WEB SITE

Dr. BuB

DSP Electronic Bulletin Board

Dr. BuB, Motorola's 24-hour digital signal processor bulletin board, has just improved his act. Sporting all new hardware and software, the new system promises to bring new features and better service to a community of DSP users that has grown astronomically in the last few years. The new system not only has a lot of new routines available for download for the DSP96002, the DSP56116, as well as the DSP56000/1, but also new features that should make the BBS more interesting and more useful.

Callers are encouraged to register for their own personal accounts which are available for immediate use – no waiting for verification. Registered users can download files, send e-mail to the sysop or other user, and can join lively discussions about digital signal processing, Motorola DSP products, and other topics. Motorola's DSP hotline has a direct connection to the new Dr. BuB, and expert applications engineers log on every day to monitor and participate in the discussion.

Callers who wish to log-in as guests, just as they did with the old system, can still do so. The guest can navigate through the menus, read a variety of useful postings and messages, and leave e-mail with the sysop upon logging out. Guests who discover information or features that they need but don't have access to, are free to log-in again and open an account which will give them immediate access to additional information.

To log-in the new system:

- Dial (512) 891-DSP1 (891-3771) for 2400, 1200, or 300 baud modems. For the 1200 baud V.22 European standard, dial (512) 891-3772. Set the character format to 8 data, no parity.

- After the connection has been established, first-time users can either log-in as "guest" or can open a new account by selecting "new".

Now simply follow the prompts. Help is available at most levels but if you have questions, leave mail to the sysop.

Freeware Line

Microcontroller Electronic Bulletin Board

Freeware is your direct line to the latest information and software for Motorola's microcontroller families. With a PC and a modem, you can access a wealth of information, including:

- Support software for EVMs, PCs and Macintosh™ Computers
 - Cross Assemblers
 - Small C Compiler for 68HC11
 - EVM and EVB Monitor/Debugger Object Code
- Development software for MCUs
 - Floating Point Routines
 - Fast Fourier Transform Routines
 - 16-Bit Math Packages
 - Utility Programs
 - User Group Library Routines and User-Donated Programs
 - Kermit File Transfer Program
 - Terminal Emulation Program
- Masked ROM information
- MCU literature listings
- Updates/Erratas to existing literature
- Press releases and updates concerning new and phase-out products
- Contests, promotions, and seminars
- Electronic mail service



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