DSP
(Digital Signal Processor)
Products

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Quarter 2, 2000

Digital DNA
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THE HEART OF SMART.

Contents

DSP56800 Family General Purpose 16-Bit Fixed Point*

Part	Performance	Program ROM/RAM/ FLASH	Data ROM/RAM/ FLASH	Peripherals	Package Pins	Comments
DSP56F801FA80	80 MHz	— / 1K / 8K	— / 1K / 2K	SCI, SPI, ADC, PWM, Quad Timer	48 LQFP	MCU friendly instruction set, OnCE for debug, on-chip relaxation oscillator, 2K BootFLASH, up to 11 GPIO. Available 4Q 2000.
DSP56F803BU80	80 MHz	— / 512 / 32K	— / 2K / 4K	CAN, SCI, SPI, ADC, PWM, Quadrature Decoder, Quad Timer	100 LQFP	MCU friendly instruction set, OnCE for debug, 2K Boot Flash, external memory expansion available, up to 16 GPIO. S, MOQ of 90.
DSP56F805FV80	80 MHz	— / 512 / 32K	— / 2K / 4K	CAN, SCIs, SPI, ADC, PWMs, Quadrature Decoders, Quad Timers	144 LQFP	MCU friendly instruction set, OnCE for debug, 2K Boot Flash, external memory expansion available, up to 32 GPIO. S, MOQ of 60.
DSP56F807PY80 (LQFP) DSP56F807VF80 (MAPBGA)	80 MHz	— / 2K / 60K	— / 2K / 8K	CAN, SCIs, SPI, ADCs, PWMs, Quadrature Decoders, Quad Timers	160 LQFP 160 MAPBGA	MCU friendly instruction set, OnCE for debug, 2K Boot Flash, external memory expansion available, up to 32 GPIO. Available 1Q 2001.
Applications			Development Tools		Benefits	
Motion Control • Smart appliances • Environmental controls • Instrumentation			Refer to the "Development Tools" section of this guide		Precise programming of drive waveforms allows control over power consumption, reducing noise and other forms of energy usage. Provides either vector or vectorless control depending on application need and motor type; DSP type can be selected to match exact design requirements. Distortion correction to assure waveform purity.	

DSP56800 Family General Purpose 16-Bit Fixed Point* (Continued)

Applications	Development Tools	Benefits
Industrial • Uninterruptable power supplies • Noise cancellation/suppression • Temperature control • HVAC • Inverters and AC-to-DC conversion • Lighting • Automation	Refer to the "Development Tools" section of this guide	Provides specific I/O and memory tailored to the design need. Capabilities range from lowest cost part for sensorless speed-control algorithms to parts having extended memory and I/O suitable for high-end systems. Has extended PWM and ADC modules, as well as low-cost BootFLASH, for all types of motor-control, conversion, and automation requirements. High number of MIPS allows control of each axis in multi-axis systems.

Transportation
• Fuel management system
• Proximity sensors
• Airbags
• Traffic light control
• Engine management and control
  - Knock detection
  - Aircraft, automotive, marine
	Refer to the "Development Tools" section of this guide	CAN (controller area network) protocol designed to be used as a vehicle serial data bus, meeting the specific requirements of real-time processing and reliable operation within a vehicle's EMI environment. It is extremely cost effective, while still providing the wide bandwidth needed for variety of transportation-related needs. The 56F805 and 56F807 provide dual motor control and full dual motor control, respectively, for high versatility.

Instrumentation • Medical • Scientific • Servo controllers	Refer to the "Development Tools" section of this guide	Excellent choice for position control in applications using AC induction and synchronous PM motors. These chips can be used for low-end position control, vector control, and sensorless vector control. Extended CAN (controller area network) for advanced applications. High MIPS for performance control of multi-axis systems. Allows for multiple fault inputs. High waveform purity is achieved by constant distortion correction.

DSP56800 Family General Purpose 16-Bit Fixed Point* (Continued)

Part	Performance	Program ROM/RAM	Data ROM/RAM	Peripherals	Package Pins	Comments
DSP56824BU70	70 MHz/ 35 MIPs	32K/128	2K/3.5K	SPIx2, SSI, Timers x 3, PLL	100 - Pin LQFP	OnCE and PLL, 3.3 volt, 2.5V core, 2.7-3.6V I/O (5V tolerant) Order 2-unit sample pack as SPAKDSP56824BU70. P/S, MOQ of 90.

Applications	Development Tools	Benefits
Set top boxes Feature phones Digital messaging Cordless phones Modems Digital tapeless answering machines Caller ID Learning toys Meter reading devices Consumer audio Portable devices	DSPTOOLSCD DSP458CC DSP56824EVM Kit DSP56824ADSA Metrowerks Discover Metrowerks Code Warrior	General peripherals extend the architecture to meet the demands of low-power applications. The DSP56800 architecture allows for any of the ALU registers to serve as the source/destination for ALU operations. Separate and multiple buses are available to permit concurrent access to both program and data memory. Timers can operate when the core is in stop mode and can "wake-up" the core.

*Contact your local Motorola Sales Office or authorized Motorola distributor for availability.

DSP56300 Family High Performance 24-Bit Fixed Point*

Part	Performance	Program ROM/RAM	Data ROM/RAM	Peripherals	Package Pins	Comments
XC56301GC66D	66 MHz	— /4096	— /4096	32-bit PCI Host, ESSI, SCI, Triple Timer Module, GPIO	252 - Pin PBGA	MOQ=60; Order 2-unit sample pack as SPAKXC301GC100D; 3.0-3.6 Volts; 8K On-chip Memory; 2-4K Program RAM; 4-6K Data RAM
XC56301GC80D	80 MHz	— /4096	— /4096	32-bit PCI Host, ESSI, SCI, Triple Timer Module, GPIO	252 - Pin PBGA	MOQ=60; Order 2-unit sample pack as SPAKXC301GC100D; 3.0-3.6 Volts; 8K On-chip Memory; 2-4K Program RAM; 4-6K Data RAM
XC56301GC100D	100 MHz	— /4096	— /4096	32-bit PCI Host, ESSI, SCI, Triple Timer Module, GPIO	252 - Pin PBGA	MOQ=60; Order 2-unit sample pack as SPAKXC301GC100D; 3.0-3.6 Volts; 8K On-chip Memory; 2-4K Program RAM; 4-6K Data RAM
XC56301PW66D	100 MHz	— /4096	— /4096	32-bit PCI Host, ESSI, SCI, Triple Timer Module, GPIO	208 - Pin LQFP	MOQ=36; Order 2-unit sample pack as SPAKXC301PW100D; 3.0-3.6 Volts; 8K On-chip Memory; 2-4K Program RAM; 4-6K Data RAM
XC56301PW80D	80 MHz	— /4096	— /4096	32-bit PCI Host, ESSI, SCI, Triple Timer Module, GPIO	208 - Pin LQFP	MOQ=36; Order 2-unit sample pack as SPAKXC301PW100D; 3.0-3.6 Volts; 8K On-chip Memory; 2-4K Program RAM; 4-6K Data RAM
XC56301PW100D	100 MHz	— /4096	— /4096	32-bit PCI Host, ESSI, SCI, Triple Timer Module, GPIO	208 - Pin LQFP	MOQ=36; Order 2-unit sample pack as SPAKXC301PW100D; 3.0-3.6 Volts; 8K On-chip Memory; 2-4K Program RAM; 4-6K Data RAM
XC56303GC100D	100 MHz	— /4096	— /4096	8-bit Host, ESSI, SCI, Triple Timer Module, GPIO	196 - Pin PBGA	MOQ=126; Order 2-unit sample pack as SPAKXC56303GC100D; 3.0-3.6 Volts; 8K On-chip Memory; 2-4K Program RAM; 4-6K Data RAM

DSP56300 Family High Performance 24-Bit Fixed Point* (Continued)

Part	Performance	Program ROM/RAM	Data ROM/RAM	Peripherals	Package Pins	Comments
XC56303PV100D	100 MHz	— /4096	— /4096	8-bit Host, ESSI, SCI, Triple Timer Module, GPIO	144 - Pin LQFP	MOQ=60; Order 2-unit sample pack as SPAKXC303PV100D; 3.0-3.6 Volts; 8K On-chip Memory; 2-4K Program RAM; 4-6K Data RAM
XC56307GC100F	100 MHz	— /16384	— /49152	8-bit Host, ESSI, SCI, Triple Timer Module, EFCOP, GPIO	196 - Pin PBGA	MOQ=126; Order 2-unit sample pack as SPAKXC307GC100F; 34K On-chip Memory; 20-24K Program RAM; 16-48K Data RAM
XC56309GC100A	100 MHz	—/20480	—/14336	8-bit host, ESSI, SCI, triple timer module, GPIO	196-pin PBGA	MOQ = 126; order 2-unit sample pack as SPAKXC309GC100A; 34K on-chip memory; 20-24K program RAM; 10-14K data RAM
XC56309PV100A	100 MHz	—/20480	—/14336	8-bit host, ESSI, SCI, triple timer module, GPIO	144-pin LQFP	MOQ = 60; order 2-unit sample pack as SPAKXC309PV100A; 34K on-chip memory; 20-24K program RAM; 10-14K data RAM
XCB56362PV100	100 MHz/100 MIPS	30K/3K	12K/11K	ESAI, DAX, triple timer, SHI	144-pin LQFP	MOQ = 60; order 2-unit sample pack as SPAKB56362PV100; OnCE; Dolby AC-3** and DTS** decoders; 3.3V; 5V-tolerant I/O
XCB56362PV120	120 MHz/120 MIPS	30K/3K	12K/11K	ESAI, DAX, triple timer, SHI	144-pin LQFP	MOQ = 60; OnCE; Dolby AC-3** and DTS** decoders; 3.3V; 5V-tolerant I/O
XCF56362PV100	100 MHz/100 MIPS	30K/3K	12K/11K	ESAI, DAX, triple timer, SHI	144-pin LQFP	MOQ = 60; OnCE; Dolby AC-3** and DTS** decoders; 3.3V; 5V-tolerant I/O
XCF56362PV120	120 MHz/ 120 MIPS	30K/3K	12K/11K	ESAI, DAX, triple timer, SHI	144-pin LQFP	MOQ = 60; OnCE; Dolby AC-3** and DTS** decoders; 3.3V; 5V-tolerant I/O
XCB56364FU100	100 MHz/100 MIPS	8K/0.5K	None/2.5K	ESAI, SHI, PLL, GPIO	100-pin LQFP	MOQ = 90; OnCE; 3.3V-tolerant I/O

DSP56300 Family High Performance 24-Bit Fixed Point* (Continued)

Applications	Development Tools	Benefits

Communications
• Cellular/PCS telephone base stations
• Video-phones (voice processing)
• Modems/FAX machines (data compression)
• Satellite communications
• Digital FM broadcast transmitter
Computer Subsystems
• PC-FAX modems
• MPEG video cards (video compression)
• MPEG audio cards (audio processing)
• Optical disk drives (motor controls)
	DSP Application Development System (ADS) Kit:
	    Order Part# DSP56301ADSx**
	      [**A=IBM PC (486 or better); **F=SUN-4, UNIX]
	
	DSP Application Development Module (ADM):
	    Order Part # DSP56301ADM
	
	DSP Tools Software:
	    Order Part # DSPTOOLSCD
		The DSP56301 is the first member of the DSP56300 core family of programmable CMOS DSPs. The PCI interface is particularly useful in multimedia and telecommunication applications such as video-conferencing and base tranceiver stations.

Communications/Networking
• Wireless communications equipment
• Voice over internet (VoIP)
• Phones: Video, Speaker, & Feature
Automotive:
• Adaptive suspension
• Controls: Emission and Engine
• Antilock brakes
Consumer:
• Security systems
• Televisions
• Global positioning systems
	DSP56303 Evaluation Module (EVM) Kit:
	    Order Part # DSP56303EVM
	
	DSP Tools Software:
	    Order Part # DSPTOOLSCD
		The DSP56303 is a general purpose DSP intended for use in telecommunication applications. This is a low-cost, high-performance, entry-level DSP.

DSP56300 Family High Performance 24-Bit Fixed Point* (Continued)

| Applications	Development Tools	Benefits

Communications
• Cellular/PCS telephone base stations
• T1 multiplexer (voice/data compander)
• ATM/ frame relay packet forming
Computer Subsystems
• MPEG audio cards (audio processing)
• Image processing
Instrumentation:
• Geophysical survey ground radar
Medical Instrumentation:
• Ultrasound equipment
• X-ray graphics
Automotive
• Noise canceling
Office Automation
• Fax modems (1/2 Duplex)
• Data modems (V.32 & V.Fast)
Consumer
• Voice recognition systems
• Flight simulators
• Range finding devices
• Wireless communication equipment
	DSP56307 Evaluation Module (EVM) Kit
	    Order Part # DSP56307EVM
	
	DSP Tools Software:
	    Order Part # DSPTOOLSCD
		The DSP56307 is intended for use in applications requiring a large amount of on-chip memory, such as networking wireless infrastructure applications with general filtering operations and multi-channel processing. Use of the EFCOP (Enhanced Filter Coprocessor) can deliver an additional 70 MIPS.

DSP56300 Family High Performance 24-Bit Fixed Point* (Continued)

| Applications	Development Tools	Benefits
Automotive: • Adaptive suspension • Controls: Engine and Emission Consumer: • Digital radio • Television Computer Subsystems: • PC-FAX modems • Hard-disk drive (motor controls) Communications: • Voicemail systems • PBX-switch • Cellular telephone base stations	DSP56309 Evaluation Module (EVM) Kit 　Order Part # DSP56309EVM DSP Tools Software: 　Order Part # DSPTOOLSCD	The DSP56309 is intended for applications requiring a large amount of on-chip memory such as wireless local loop and cellular transcoders. It also is intended as a RAM-based emulation part for low-cost ROM-based solutions.
DVD A/V Receivers Mini Systems Portable Audio DTV	DSP56362EVM DSPF56362EVMUPGR DSP56364ADAPTER **Note:**　DSP56364ADAPTER must plug into DSP56362EVM. Customers must purchase both tools.	Many performance enhancements over the 5600x core including 1 to 1 MHz to MIPs ratio (or 1 instruction per clock) and enhanced peripherals. The 56300 family offers a wide range of features and a wide price range. The DSP56300 Family devices offer a wide range of on chip software for complete system solutions.

 *Contact your local Motorola Sales Office or authorized Motorola distributor for availability.
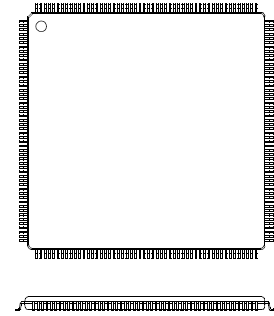
**Dolby and DTS Software Licenses are Required
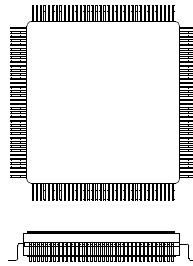
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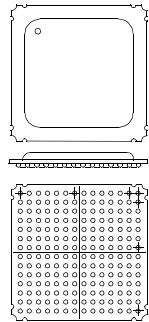
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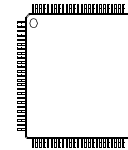GC Suffix
196-Pin / Case No. 1128-01
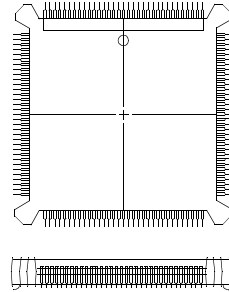
Plastic Quad Flat Package
FC Suffix
132-Pin / Case No. 831A

Thin Quad Flat Package (LQFP)
PW Suffix
208-Pin / Case No. 998

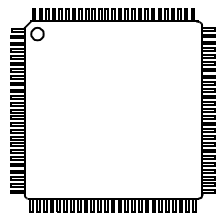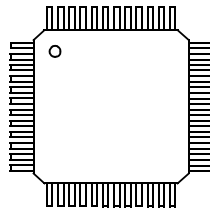Low-Profile Quad Flat Package (LQFP)
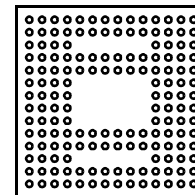PV Suffix
144-Pin / Case No. 918

Low-Profile Quad Flat Package (LQFP)
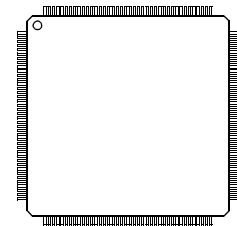BU Suffix
100-Pin
Case No. 983

Low-Profile Quad Flat Package
100-pin / Case No. 842F

Low-Profile Quad Flat Package (LQFP)
48-pin / Case No. 932

Plastic Ball Grid Array (MAPBGA)
160-pin / Case No. 1268

Low-Profile Quad Flat Package
(LQFP)
160-pin / Case No. 1259

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563xx Application Software Modules

Application/Module	Part number
CDMA Speech Codecs	
IS-127 (EVRC)	MSW1D103AAF
IS-96A (8Kbps QCELP)	MSW1D101AAF
IS-733 (13Kbps QCELP)	MSW1D102AAF
GSM Speech Codecs	
Half Rate (HR) VSELP, 5.6Kbps	MSW1D201AAF
Full Rate (FR) RPE-LTP, 13Kpbs	MSW1D201AAF
Enhanced Full Rate (EFR) ACELP, 12.2Kbps	MSW1D202AAF
Adaptive Multi-Rate (AMR)	Consult Factory
ITU Standard Speech Codecs	
G.711, 48, 56 and 64Kbps	MSW1D001AAF
G.722, 48, 56 and 64Kbps	MSW1D002AAF
G.723.1, 5.3 and 6.4Kbps	MSW1D004AAF
G.726, 16, 24, 32 and 40Kbps	MSW1D007AAF
G.728, 16Kbps	MSW1D003AAF
G.729	MSW1D006AAF
G.729 with annex A and B	MSW1D005AAF
Other Speech Processing	
Acoustic Echo Cancellation	MSW1A003AAF

563xx Application Software Modules (Continued)

Application/Module	Part number
General Telecommunication	
Multi-channel Dual Tone Multi-Frequency (DTMF) Transmit and Receive	MSW1A002AAF
Modem and Wireline	
Group 3 FAX Modem Pumps (V.17, V.21, V.27ter, V.29)	MSW1B002AAF
V.32/V.32bis Data Modem Pump	MSW1B003AAF
G.165/G.168 Hybrid Echo Cancellation (HEC)	MSW1A001AAF
Passive Integrated Services Data Network (ISDN)	MSW1C201AAF

568xx Application Software Modules

Application/Module	Part number
Speech Processing	
G.721 Nonstandard Speech Codec	Consult Factory
G.726 ITU Standard Speech Codec	Consult Factory
Speech Recognition	Consult Factory
Feature Phone	
Full Duplex Speaker Phone	Consult Factory
Caller ID Type 1	Consult Factory
Dual Tone Multi-Frequency (DTMF) Generation	Consult Factory
CAS Tone Detection	Consult Factory

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568xx Application Software Modules (Continued)

Application/Module	Part number
Modem and Wireline	
V.22bis	Consult Factory
V.42bis	Consult Factory
V.8bis	Consult Factory
G.165/G.168 Hybrid Echo Cancellation (HEC)	Consult Factory
Encryption	
DES	Consult Factory
General DSP Functions	
Sine Wave Generator	Consult Factory
FFT	Consult Factory
Fractional and Integer Arithmetic	Consult Factory
FIR Filters	Consult Factory
IIR Filters	Consult Factory
Utilities	
CRC (CCITT 16 bit)	Consult Factory

DSP56F80X Software Modules*

Algorithm	Applicable to Motor Types
Power Factor	AC induction using V/Hz closed loop with PFC
Vector Limitation Rotation	AC induction vector control, position closed-loop using encoder position sensor (servo control); AC induction vector control, speed closed-loop using encoder position sensor; AC induction vector control, sensorless speed closed-loop using Kalman filter
Three-Phase Sine Waveform Generation	AC induction using V/Hz; AC induction using V/Hz closed-loop; AC induction using V/Hz closed-loop with PFC
Clarke/Park Transformation	AC induction vector control, position closed-loop using encoder position sensor (servo control); AC induction vector control, speed, closed-loop using encoder position sensor; AC induction vector control, sensorless speed, closed-loop using Kalman filter
Space Vector Modulation	AC induction vector control, position closed-loop using encoder position sensor (servo control); AC induction vector control, speed, closed-loop using encoder position sensor; AC induction vector control, sensorless speed, closed-loop using Kalman filter
Ramp	**AC** AC induction using V/Hz; AC induction using V/Hz closed-loop; AC induction vector control, position closed-loop using encoder position sensor (servo control); AC induction using V/Hz closed-loop with PFC; AC induction vector control, speed closed-loop using encoder position sensor; AC induction vector control, sensorless speed, closed-loop using Kalman filter **DC** Brushless DC with Hall position sensors, closed-loop; brushless DC with encoder; sensorless, brushless DC using back-EMF measurement detection; sensorless, brushless DC using back-EMF zero-crossing detection **SR** Low-end SR with Hall position sensor; SR with position sensor using encoder; high-end SR, sensorless speed, closed-loop using flux linkage integration; SR sensorless speed, closed-loop using flux linkage integration
Extended Kalman Filter	AC induction vector control, sensorless speed, closed-loop using Kalman filter
D-Q System (two-phase)	AC induction vector control, position closed-loop using encoder position sensor (servo control)
FOC Decoupling	AC induction position closed-loop using encoder position sensor (servo control); AC induction vector control, speed closed-loop using encoder position sensor; AC induction vector control, sensorless speed, closed-loop using Kalman filter

DSP56F80X Software Modules* (Continued)

Algorithm	Applicable to Motor Types
BLDC Commutation Handler with Sensor	Brushless DC with Hall position sensors, closed-loop; brushless DC with encoder
BLDC Commutation Handler Sensorless-Back EMF Measurement	Sensorless, brushless DC using back-EMF measurement detection
SR Commutation Angle Calculation	SR with Hall position sensors; high-end SR with position sensor and encoder; SR sensorless speed, closed-loop using flux linkage integration
SR Commutation Handler	SR with Hall position sensors; high-end SR with position sensor and encoder; SR sensorless speed, closed-loop using flux linkage integration
Speed Pushbutton	**AC** AC induction using V/Hz; AC induction using V/Hz closed-loop; AC induction vector control, position closed-loop using encoder position sensor (servo control); AC induction using V/Hz closed-loop with PFC; AC induction vector control, speed, closed-loop using encoder position sensor; AC induction vector control, sensorless speed, closed-loop using Kalman filter **DC** Brushless DC with Hall position sensors, closed-loop; brushless DC with encoder; sensorless brushless DC using back-EMF measurement detection; sensorless brushless DC using back-EMF zero-crossing detection **SR** Low-end SR with Hall position sensor; SR with position sensor using encoder; high-end SR, sensorless speed, closed-loop using flux linkage integration; SR sensorless speed, closed-loop using flux linkage integration
PI/PID Controllers	**AC** AC induction using V/Hz closed-loop; AC induction vector control, position closed-loop using encoder position sensor (servo control); AC induction using V/Hz closed-loop with PFC; AC induction vector control, speed closed-loop using encoder position sensor; AC induction vector control, sensorless speed, closed-loop using Kalman filter **DC** Brushless DC with Hall position sensors, closed-loop; brushless DC with encoder; sensorless brushless DC using back-EMF measurement detection; sensorless brushless DC using back-EMF zero-crossing detection **SR** Low-end SR with Hall position sensor; SR with position sensor using encoder; high-end SR, sensorless speed, closed-loop using flux linkage integration; SR sensorless speed, closed-loop using flux linkage integration

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DSP56F80X Software Modules* (Continued)

Algorithm	Applicable to Motor Types
Velocity Calculation and Estimation	**AC** AC induction using V/Hz; AC induction using V/Hz closed-loop; AC induction vector control, position closed-loop using encoder position sensor (servo control); AC induction using V/Hz closed-loop with PFC; AC induction vector control, speed, closed-loop using encoder position sensor **DC** Brushless DC with Hall position sensors, closed-loop; brushless DC with encoder; sensorless brushless DC using back-EMF measurement detection; sensorless brushless DC using back-EMF zero-crossing detection **SR** Low-end SR with Hall position sensor; SR with position sensor using encoder; high-end SR, sensorless speed, closed-loop using flux linkage integration; SR sensorless speed, closed-loop using flux linkage integration
Position Calculation and Estimation	**AC** AC induction vector control, position closed-loop using encoder position sensor (servo control) **DC** Brushless DC with Hall position sensors, closed-loop; brushless DC with encoder; sensorless brushless DC using back-EMF measurement detection; sensorless brushless DC using back-EMF zero-crossing detection **SR** Low-end SR with Hall position sensors; SR with position sensor using encoder; high-end SR, sensorless speed, closed-loop using flux linkage integration; SR sensorless speed, closed-loop using flux linkage integration
Lookup Table	AC induction using V/Hz; AC induction using V/Hz closed-loop; AC induction using V/Hz closed-loop with PFC; high-end SR with position sensor and position encoder; sensorless SR speed, closed-loop using flux linkage integration

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DSP56F80X Software Modules* (Continued)

Algorithm	Applicable to Motor Types
Brake Control	**AC** AC induction using V/Hz; AC induction using V/Hz closed-loop; AC induction vector control, position closed-loop using encoder position sensor (servo control); AC induction using V/Hz closed-loop with PFC; AC induction vector control, speed, closed-loop using encoder position sensor; AC induction vector control, sensorless speed, closed-loop using Kalman filter **DC** Brushless DC with Hall position sensors, closed-loop; brushless DC with encoder; sensorless, brushless DC using back-EMF measurement detection; sensorless, brushless DC using back-EMF zero-crossing detection **SR** Low-end SR with Hall position sensors; SR with position sensor using encoder; high-end SR, sensorless speed, closed-loop using flux linkage integration; SR sensorless speed, closed-loop using flux linkage integration
Switch Control	**AC** AC induction using V/Hz; AC induction using V/Hz closed-loop; AC induction vector control, position closed-loop using encoder position sensor (servo control); AC induction using V/Hz closed-loop with PFC; AC induction vector control, speed, closed-loop using encoder position sensor; AC induction vector control, sensorless speed, closed-loop using Kalman filter **DC** Brushless DC with Hall position sensors, closed-loop; brushless DC with encoder; sensorless, brushless DC using back-EMF measurement detection; sensorless, brushless DC using back-EMF zero-crossing detection **SR** Low-end SR with Hall position sensors; SR with position sensor using encoder; high-end SR, sensorless speed, closed-loop using flux linkage integration; SR sensorless speed, closed-loop using flux linkage integration

DSP56F80X Software Modules* (Continued)

Algorithm	Applicable to Motor Types
Board Identification	**AC** AC induction using V/Hz; AC induction using V/Hz closed-loop; AC induction vector control, position closed-loop using encoder position sensor (servo control); AC induction using V/Hz closed-loop with PFC; AC induction vector control, speed, closed-loop using encoder position sensor; AC induction vector control, sensorless speed, closed-loop using Kalman filter **DC** Brushless DC with Hall position sensors, closed-loop; brushless DC with encoder; sensorless, brushless DC using back-EMF measurement detection; sensorless, brushless DC using back-EMF zero-crossing detection **SR** Low-end SR with Hall position sensors; SR with position sensor using encoder; high-end SR, sensorless speed, closed-loop using flux linkage integration; SR sensorless speed, closed-loop using flux linkage integration
Commutation Routine	**AC** AC induction using V/Hz; AC induction using V/Hz closed-loop; AC induction vector control, position closed-loop using encoder position sensor (servo control); AC induction using V/Hz closed-loop with PFC; AC induction vector control, speed, closed-loop using encoder position sensor; AC induction vector control, sensorless speed, closed-loop using Kalman filter **DC** Brushless DC with Hall position sensors, closed-loop; brushless DC with encoder; sensorless, brushless DC using back-EMF measurement detection; sensorless, brushless DC using back-EMF zero-crossing detection **SR** Low-end SR with Hall position sensors; SR with position sensor using encoder; high-end SR, sensorless speed, closed-loop using flux linkage integration; SR sensorless speed, closed-loop using flux linkage integration
Integrator	SR, sensorless speed, closed-loop using flux linkage integration
Flux Estimation	SR, sensorless speed, closed-loop using flux linkage integration

*Consult a Motorola Marketing or Engineering sales representative for applicability and availability of these algorithms

Motorola DSP Device Literature *

Device	Item	Reference
DSP56000 Family	Family Manual	DSP56KFAMUM/AD
DSP56002	Data Sheet User's Manual Product Brief	DSP56002/D DSP56002UM/AD DSP56002P/D
DSP56300 Family	Family Manual	DSP56300FM/AD
DSP56301	Data Sheet User's Manual Product Brief	DSP56301/D DSP56301UM/AD DSP56301P/D
DSP56303	Data Sheet User's Manual Product Brief	DSP56303/D DSP56303UM/AD DSP56303P/D
DSP56307	Data Sheet User's Manual Product Brief	DSP56307/D DSP56307UM/AD DSP56307P/D
DSP56309	Data Sheet User's Manual Product Brief	DSP56309/D DSP56309UM/AD DSP56309P/D
DSP56002EVM	Product Brief	DSP56002EVMP/D
DSP56303EVM	Product Brief	DSP56303EVMP/D
DSP56307EVM	Product Brief	DSP56307EVMP/D
DSP56309EVM	Product Brief	DSP56309EVMP/D
DSP56311	Data Sheet User's Manual Product Brief	DSP56311/D DSP56311UM/AD DSP56311P/D

Motorola DSP Device Literature (Continued)*

Device	Item	Reference
DSP56362	Data Sheet User's Manual Product Brief	DSP56362/D DSP56362UM/AD DSP56362P/D
DSP56364	Data Sheet User's Manual Product Brief	DSP56364/D DSP56364UM/AD DSP56364P/D
DSP56800	Family Manual	DSP56800FM/AD
DSP56824	Data Sheet User's Manual Product Brief	DSP56824/D Rev. 1 DSP56824UM/AD DSP565824
DSP56F801/803/805/807	User's Manual	DSP56F801-7UM/D
DSP56F801	Product Brief Data Sheet	DSP56F801PB/D DSP56F801/D
DSP56F803	Product Brief Data Sheet	DSP56F803PB/D DSP56F803/D
DSP56F805	Product Brief Data Sheet	DSP56F805PB/D DSP56F805/D
DSP56F807	Product Brief Data Sheet	DSP56F807PB/D DSP56F807/D

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DSP Development Tools

Part Number	Description	Remarks
DSP56800 Software DSPTOOLSCD	DSP56800 Family Simulator/Assembler/Linker/Librarian/C Compiler for IBM PC™, SUN-4 and Hewlett-Packard Series 700	Version 6.2
CE-DSP3.5	Metrowerks for Motorola DSP integrated development environment supporting Motorola's DSP56800 family	Available now
MSW3SDK000AA	Embedded software development kit (SDK) for use with DSP products. Includes PC-Master tool.	Available now. Consult Web or factory for current version
**	Embedded software development kit (SDK) for use with MCU products. Includes PC-Master tool.	--
DSP56000 Software DSPTOOLSCD	DSP56000 Family Simulator/Assembler/Linker/Librarian/C Compiler for IBM PC, SUN-4 and Hewlett-Packard Series 700	Version 6.2
DSP56300 Software DSPTOOLSCD CDWISD/D	DSP56300 Family Simulator/Assembler/Linker/Librarian/C Compiler for IBM PC, SUN-4 and Hewlett-Packard Series 700 Using the Motorola DSP56307, Multimedia Training CD-ROM for Windows 95/NT	Version 6.2
DSP56800 Hardware DSP56824ADSA DSP56824EVM	DSP56824 Development System for the IBM PC DSP56824 Evaluation Module Kit	Version 6.1 6.1
DSP56F801EVM	Evaluation kit for the DSP56F801 processor	
DSP56F803EVM	Evaluation kit for the DSP56F803 processor	
DSP56F805EVM	Evaluation kit for the DSP56F805 processor	
DSP56F807EVM	Evaluation kit for the DSP56F807 processor	

DSP Development Tools (Continued)

Part Number	Description	Remarks
DSPCOMMAND	Emulation support for DSP56F80X processors. Requires ISA slot.	Available now
DSPCOMMPARALLEL	Emulation support for DSP56F80X processors. Requires parallel port.	Available now
DSPCOMMANDPC1	Emulation support for DSP56F80X processors. Requires PCI slot.	Consult Web or Metrowerks for availability of CodeWarrior software support
DSPCOMMETHERNET	Emulation support for DSP56F80X processors. Requires Ethernet network.	Consult Web or Metrowerks for availability of CodeWarrior software support
DSP56000 Hardware		
DSP56002EVM	DSP56002 Low-Cost Evaluation Module including Software	
DSP56300 Hardware DSP56301ADSA DSP56301ADSF DSP56303EVM DSP56307EVM DSP56309EVM DSP56362EVM	DSP56301 Development System for IBM PC DSP56301 Development System for SUN-4 DSP56303 Evaluation Module Including Software DSP56307 Evaluation Module Including Software DSP56309 Evaluation Module Including Software DSPx56362 Emulation Module	
Universal Hardware		Version
DSPPCHOST DSPSUN4HOST DSPCOMMAND DSPCOMMANDPCI DSPCOMMPARALLEL	PC Compatible Host Board and Interface Software SUN-4 Host Board and Interface Software 16- and 24- Bit Command Converter Board 16- and 24- Bit Command Converter Board for PCI Interface 16- and 24- Bit Command Converter Board for Parallel Interface	2.0 2.0 6.1 1.0 1.0

Terms

AC	Alternating Current		ITU	International Telecommunications Union
AC3	Project name for Dolby Digital Decoder		LDC	Literature Distribution Center
ADC	Analog to Digital Converter		LQFP	Low-Profile Quad Flat Package
ALU	Arithmetic Logic Unit		MFT	Multi-Function Timer
ATM	Asynchronous Transfer Mode		MIPS	Million Instructions per Second
BLDC	Brushless DC		MOQ	Minimum Order Quantity
CAN	Controller Area Network		MPEG	Motion Picture Experts Group (compression standard)
CDMA	Code Division Multiple Access		OnCE	On-Chip Emulation Port/Module
Ch	Channel		P	In Production
Codec	Compression/Decompression (algorithm)		PBGA	Plastic Ball Grid Array
COP	Computer Operating Properly (Watch Dog Timer)		PCM	Pulse Code Modulation
DC	Direct Current		PLL	Phase-Lock Loop
DES	Data Encryption Standard (USA)		PPP	Post Processing Phase
DTS	Digital Theater Systems		PQFP	Plastic Quad Flat Package
DTV	Digital Television		PWM	Pulse Width Modulator
DVD	Digital Video Disk		S	Samples available
EFCOP	Enhanced Filter Co-Processor		SCI	Serial Communications Interface (asynchronous)
EMI	External Memory Interface		SHI	Serial Host Interface
ESAI	Enhanced Serial Audio Interface		SPI	Serial Peripheral Interface
FFT	Fast Fourier Transform		SR	Switched Reluctance
Freq	Frequency in megahertz		SSI	Single-Step Instruction
GPIO	General-Purpose I/O		THX	Lucasfilm sound processing algorithm
GSM	Ground Station Mobile		TQFP	Thin Quad Flat Package
HI08	8 bit Host Interface		USB	Universal Serial Bus
I/O	Bidirectional Input and Output Port Pins		WWW	World Wide Web
IP	Internet Protocol			

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