

## SPECIFICATION SHEET

### MPC500 FAMILY



#### PROCESSOR ADVANTAGES:

- Up to 4 on-chip processing units
  - Power PC instruction-set architecture, plus up to 3 RISC microengine-based timer systems (TPUs)
- 32-bit RISC CPU with floating point unit
- Up to 1 MB integrated secure Flash
- Up to 50 KB static RAM
- Expansion bus with memory controller includes chip selects
- GNU compiler, diab compiler
- Metrowerks™ tools suite
- RTOS – Nucleus, OSEK, RTXC, eCos
- Five tools vendors support background debug mode

#### PERIPHERALS:

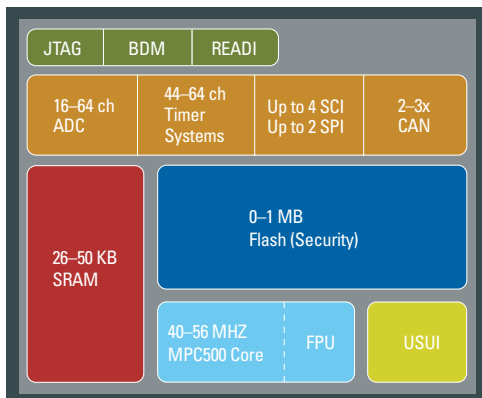
- Up to 40 channels of A to D with internal multiplexing
- Up to 64 A to D with external multiplexing
  - 10 bits at 5 µsec conversion
- Communication connection
  - UART x 2 (up to an additional 16 UARTs using 2 TPUs, or an additional 24 UARTs using 3 TPUs)
  - CAN 2.0B x 3 (Toucan)
  - SPI
- Time Processor Unit (TPU)
  - Built-in complex function selection
  - 16 function codes per set (see list)
  - Easy implementation via HLL
- Data Link Controller Module (DLCM)

#### APPLICATIONS

- GPS-based equipment
- Medical equipment
- Breath analyzers
- Paperless chart recorders
- Flow meters
- Avionic and nautical instrumentation
- Parking system control
- Automated toll booth systems
- Chromatography
- Money validation machines and vending machines
- Control panels
- ISDN PRI interface control
- Infiniband® switch control
- RF controlled valves
- Stepper motors and AC motors
- Brushed and brushless DC motors
- Programmable logic controllers
- Factory automation equipment
- PID controllers
- Fish finders

#### TIME PROCESSOR UNIT BUILT-IN FUNCTIONS:

- Programmable time accumulator
- Queued output match
- Table stepper motor
- Frequency measurement
- Universal asynchronous receiver/transmitter (UART)
- Input capture/input transition
- Multiphase motor commutation
- Hall effect decode
- Multichannel pulse width modulation
- Fast quadrature decode
- Period/pulse width accumulator
- Output compare
- Single-channel pulse width modulation
- Discrete input/output
- Synchronized pulse width measurement
- Synchronous serial input/output port
- Read/write timers and pins



**For More Information On This Product,  
Go to: [www.freescale.com](http://www.freescale.com)**



## PRODUCTION

PART NUMBER	FEATURES	SPEED, TEMPERATURE	QTY 10K IN 2003
MPC555LFMZP40	448 KB Flash, 50-channel timer system, 32-channel A/D, 2x CAN	40 MHz, -40°C to +125°C	\$47.59
MPC555LFCZP40	448 KB Flash, 50-channel timer system, 32-channel A/D, 2x CAN	40 MHz, -40°C to +85°C	\$43.26
MPC561MZP56	54-channel timer system, 32-channel A/D, 3x CAN	56 MHz, -40°C to +125°C	\$23.87
MPC561CZP40	54-channel timer system, 32-channel A/D, 3x CAN	40 MHz, -40°C to +85°C	\$21.70
MPC563MZP56	512 KB Flash, 54-channel timer system, 32-channel A/D, 3x CAN	56 MHz, -40°C to +125°C	\$39.18
MPC563CZP40	512 KB Flash, 54-channel timer system, 32-channel A/D, 3x CAN	40 MHz, -40°C to +85°C	\$35.62
MPC565MZP56	1 MB Flash, 70-channel timer system, 40-channel A/D, 3x CAN	56 MHz, -40°C to +125°C	\$58.54
MPC565CZP40	1 MB Flash, 70-channel timer system, 40-channel A/D, 3x CAN	40 MHz, -40°C to +85°C	\$50.91

## SAMPLES

PART NUMBER	FEATURES	SPEED, TEMPERATURE	1 PCS NOW
KMPC555LFMZP40	448 KB Flash, 50-channel timer system, 32-channel A/D, 2x CAN	40 MHz, -40°C to +125°C	\$56.05
KMPC561MZP56	54-channel timer system, 32-channel A/D, 3x CAN	56 MHz, -40°C to +125°C	\$28.11
KMPC563MZP56	512 KB Flash, 54-channel timer system, 32-channel A/D, 3x CAN	56 MHz, -40°C to +125°C	\$46.15
KMPC565MZP56	1 MB Flash, 70-channel timer system, 40-channel A/D, 3x CAN	56 MHz, -40°C to +125°C	\$68.94

## EVALUATION BOARDS

PART NUMBER	SUPPORTED DEVICES	1 PCS NOW
MPC555CME	MPC555	\$650
MPC564EVB	MPC561, MPC562, MPC563, MPC564	\$895
MPC566EVB	MPC565, MPC566	\$895

<b>Metrowerks™</b> <a href="http://www.metrowerks.com">www.metrowerks.com</a> IDE - CodeWarrior™ Flash Programming - IDE OSEK RTOS	<b>Lauterbach</b> <a href="http://www.lauterbach.com">www.lauterbach.com</a> BDM Debugger Trace32 Nexus Debugger Trace32 Code Trace (with Bus Access) Code Trace (Nexus™)	<b>Ashware</b> <a href="http://www.ashware.com">www.ashware.com</a> TPU Simulator
<b>Axiom</b> <a href="http://www.axman.com">www.axman.com</a> Evaluation Boards	<b>Ashling Microsystems</b> <a href="http://www.ashling.com">www.ashling.com</a> BDM Debugger - Opella, Genia, and Vitra Nexus Debugger - Vitra (w/ trace) Nexus Debugger - Opella, Genia	<b>ETAS</b> <a href="http://www.etasinc.com">www.etasinc.com</a> ErCOSEK Calibration Tools (ETK) Calibration Tools (ETK) Nexus
<b>WindRiver®</b> <a href="http://www.windriver.com">www.windriver.com</a> BDM debugger - SingleStep™ BdM debugger - SingleStep with vision Flash Programming - SingleStep BDM Debugger - visionCLICK Nexus Debugger - visionCLICK Nexus Debugger - SingleStep with vision Flash Programming - visionCLICK Compiler - DiabData MATRIXx Simulator - SingleStep	<b>Green Hills</b> <a href="http://www.ghs.com">www.ghs.com</a> IDE, Debugger - Multi	<b>Agilent</b> <a href="http://www.agilent.com">www.agilent.com</a> Logic Analyzer Inverse Assembler, Source Correlation Emulation Probe (BDM)
	<b>P&amp;E Microsystems</b> <a href="http://www.pemicro.com">www.pemicro.com</a> Low-Cost Debugger Flash Programming Tools	<b>Tektronix</b> <a href="http://www.tektronix.com">www.tektronix.com</a> Logic Analyzer
	<b>GNU</b> <a href="http://www.gnu.org">www.gnu.org</a> Compiler/Debugger	<b>Abatron AG</b> <a href="http://www.abatron.ch/welcome.html">www.abatron.ch/welcome.html</a> BDM Support
		<b>Accelerated Technologies</b> <a href="http://www.acceleratedtechnology.com">www.acceleratedtechnology.com</a> RTOS (Nucleus)

## LEARN MORE:

### Brochures and Manuals:

- RCPURM/AD - MPC500 Family RCPURM Reference Manual
- AN2109/D - MPC555 Interrupts
- MPC555PB/D - MPC555 Microcontroller Product Brief
- MPC561\_3RM/D - MPC561/MPC562/MPC563/MPC564 Reference Manual
- MPC561PB/D - MPC56x Microcontroller Product Brief for 561/562/563/564
- MPC565PB/D - MPC565/MPC566 Product Brief
- MPC500PITCHPAK/D - Printed family product briefs and CD with technical data

### Motorola Semiconductors

[www.motorola.com/semiconductors](http://www.motorola.com/semiconductors)

### MPC500 Web Resources:

[www.motorola.com/semiconductors](http://www.motorola.com/semiconductors)

(Click on 32-bit Embedded Processors, then PowerPC, then choose MPC5xx)

### Products Library

[www.motorola.com/semiconductors/webapp/sps/library/prod\\_lib.jsp](http://www.motorola.com/semiconductors/webapp/sps/library/prod_lib.jsp)

### Documentation Library

[www.motorola.com/semiconductors/webapp/sps/library/docu\\_lib.jsp](http://www.motorola.com/semiconductors/webapp/sps/library/docu_lib.jsp)

### Tools Library

[www.motorola.com/semiconductors/webapp/sps/library/tools\\_lib.jsp](http://www.motorola.com/semiconductors/webapp/sps/library/tools_lib.jsp)

### Metrowerks

[www.metrowerks.com](http://www.metrowerks.com)

### MPC500 Webcast

[www.motorola.com/semiconductors/collateral/RMWCMP5XX.html](http://www.motorola.com/semiconductors/collateral/RMWCMP5XX.html)



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