

RSMPC555 Board

The [RSPPC555](#) is a stand-alone high performance motion control board designed to control and/or monitor either industrial robots, electrical vehicle or any other machine using up to 4 axis. Using a [32-bit Power PC microprocessor](#), the controller provides high performance without sacrificing ease of use and cost effectiveness.

MPC555 : 32 Bit Microcontroller

The MPC555 is a high-speed 32 bit control unit that combines high-performance data manipulation capabilities and a large on-chip Flash memory with powerful peripheral subsystems. This MCU is built up from standard modules that interface through a common intermodule bus (IMB).

The MPC555 incorporates a G2 Core with a Floating Point Unit a 26 Kbyte fast RAM, a 6 Kbyte dual ported RAM for TPU microcode RAM(DPTRAM), 448 Kbyte flash EEPROM with 5 volt programming, a 5 volt I/O system a System Interface Unit (USIU), a Queued Serial Multi-Channel Module (QSMCM), dual CAN 2.0B controller modules (TouCAN™), dual Time Processor Units (TPU3), a Modular I/O System (MIOS1) and dual Queued Analog to Digital Converters (QADC64),

MPC555 Features

- RISC MCU Central Processing Unit (RCPU)
- Four-Bank Memory Controller
- U-Bus System Interface Unit (USIU)
- Flexible Memory Protection Unit
- 448 Kbytes of CDR MoneT Flash EEPROM Memory (CMF)
- 26 Kbytes of Static RAM
- General-Purpose I/O Support
- Two Time Processor Units (TPU3)
- 18-Channel Modular I/O System (MIOS1)
- Two Queued Analog-to-Digital Converter Modules (QADC)
- Two CAN 2.0B Controller Modules (TouCANs)
- Queued Serial Multi-Channel Module (QSMCM)

MPC555 Parametrics

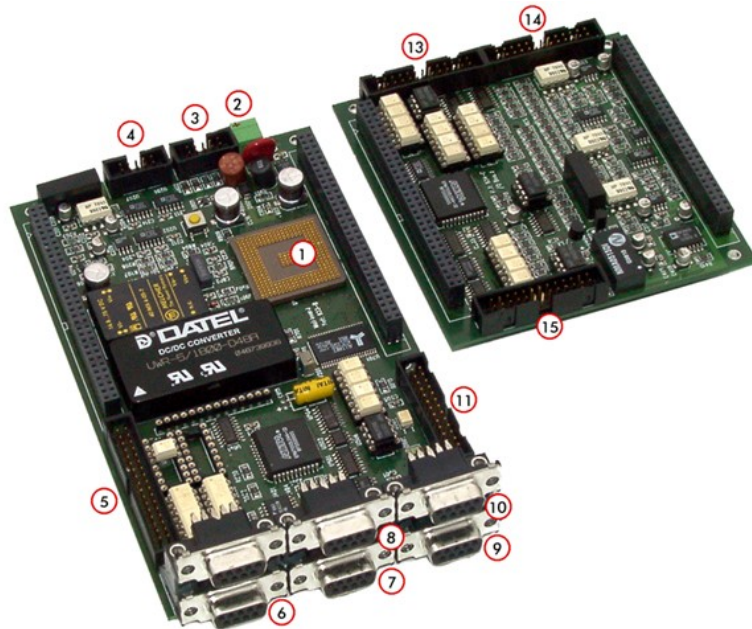
RAM (KBytes)	Flash (KBytes)	Timer	Serial	A/D	Operating Voltage (Volts)	Operating Frequency (MHz)
26K + 6K for TPUs	448K	50 channel timer systems: 2 TPU3 + MIOS1	QSMCM (2 SCI + QPSI) + 2 TOUCAN	2 QADC64 (10-bit A/D with 64 result registers each), 32 channels on chip	3.3 Vdc for core, 5.0 Vdc for FLASH	40

RSMPC555 Board

The 100x165mm main board includes the processor, all need for one axis, user isolated input/output and communication channel. A mezzanine card allows to extend the main board from 1 to 4 axis. The PC104 like connector allow to add custom module to future extension (additional IO, RAM, EEPROM).

A wide range of [logical and analog signals](#), including optical encoders outputs can be used for both data acquisition and device control.

The available outputs can be either analog or PWM to control linear or pulse-width-modulation amplifiers, or logical to control relays or visualization systems.



- (1) MPC555 connector
- (2) Power supply: 18-60VDC (from the batteries)
- (3) BDM Interface (Basic Debug Interface)
- (4) Analog input (Potentiometer, Joystick)
- (5) Logical Input/Output
- (6) Synchronous serial line (Absolut Encoder)
- (7) Asynchronous serial lines (Port 0)
- (8) Asynchronous serial lines (Port 1)
- (9) CAN network (Port 0)
- (10) CAN network (Port 1)
- (11) Axe 1 (Available)
- (13) Axe 2 (LEFT whee)
- (14) Axe 3 (RIGHT whee)
- (15) Axe 4 (Stering Jack)

The total Input/Output lines for each node is listed below:

.	PWM	Logical Input	Logical Output	Encoders	Analog input	Analog output	Serial lines	Asyn Serial lines	Can Network
Axe 1	1 (1)	1 (2)	3 (3)	.	.(4)	1	.	.	.
Axe 2 Wheel L	1	1	3	1 Incremental	.(4)	1	.	.	.
Axe 3 Wheel R	1	1	3	1 Incremental	.(4)	1	.	.	.
Axe 4 Steering	1	1	3	1 Absolut	.(4)	1	1	.	.
Joystick	.	.	.	.	2	.	.	.	.
Potentiometer	.	.	.	.	1	.	.	.	.
Course Limiter	.	2	.	.	.	.	.	.	.
Relays INH	.	.	2	.	.	.	.	.	.
Available Input	.	6	.	.	4	.	.	.	.
Available Output	.	.	6	.	.	.	.	.	.
Host computer	.	.	.	.	.	.	.	.	2
US Network(op)	.	.	.	.	.	.	.	1	.
Available SL	.	.	.	.	.	.	.	1	.
Total=	4	8+4	8+12	3	8+7	4	1	2	2

- (1) : Used for Digital Actuators
- (2) : Fault
- (3) : Direction , Inhibition, Break (Break + Inhibition are related to te same logical output)
- (4) : Voltage, Temperature.
- (5) : CAN Protocol non implemented.