

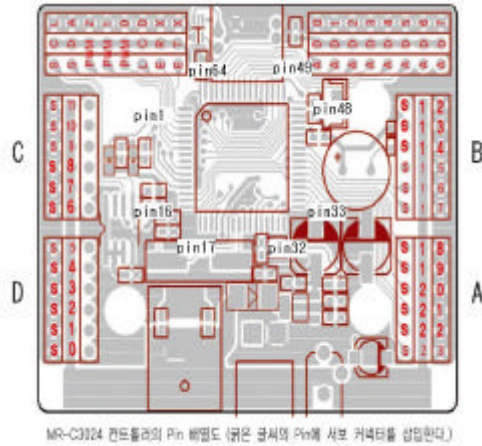
1. MR-C3024 ROBOT CONTROLLER

Capable of simultaneously controlling up to 24 **servo** motors, **MR-C3024 is the best choice for robots** requiring 20 or more joints such as humanoid and animal robots. Based on advanced ATMEGA128 RISC chip, MR-C3024 is easy to program and comes in different versions to meet different user requirements.

< Specification >

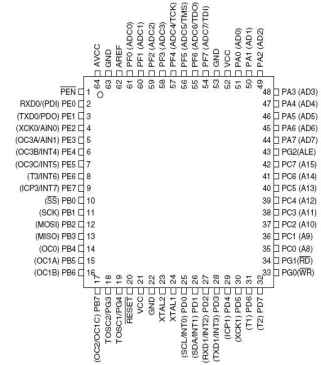
Model	MR-C3024
Photo	
CPU	Atmel ATMEGA128 8bit RISC
I/O Ports	24 I/O ports
Servo Control	24
PWM DC Motor Control	3
A/D Conversion Channel	8 ch
Program Memory	32Kbytes
Ultrasonic Sensor	12 ch
IR Remote Control Reception	Yes
RF Control Reception	Yes
Common Features	1. LCD Module Control 2. 6 Octave Piezo (Music, Voice) 3. RS-232 (UART) Serial Communication
Misc	1. Direct Serial Control (Using VB, VC++) 2. Robot Programming : Requires ROBOBASIC v2.0 or above 3. Download : Requires serial cable

1. MR-C3024 STRUCTURE



Pin Configurations

Figure 1. Pinout ATmega128



Note: The bottom pad under the MLF package should be soldered to ground.

1. MR-C3024

2. ATMEGA 128 pin configuration

? Connectors

SCL	SDA	PWM2	PWM1	PWM0	LCD	TX	RX	Interface Cable connector	ADC0	ADC1	ADC2	ADC3	ADC4	ADC5	ADC6	ADC7 / REMOCON
S11	S10	S9	S8	S7	S6	S5	S4	ATMEGA 128				PIEZO				S17
							S16									
							S15									
							S14									
							S13									
							S21									
							S23									
							S22									
							S21									
							S20									
							S19									
							S18									
								XTAL 7.3728Mhz								
								BATTERY CONNECTOR	CHARGING CONNECTOR							

? < MRC – 3024 PIN ALLOCATION Schematic >

PIN. I/O/PORT	ATMEGA128 external function	MR-C3024 function
1. /PEN	PEN <-> AVCC	NC
2. PE0	RXD0 / PDI	RX
3. PE1	TXD0 / PDO	TX
4. PE2	XCK0 / AIN0	LCD
5. PE3	OC3A / AIN1	PWM 0
6. PE4	OC3B / INT4	PWM 1
7. PE5	OC3C / INT5	PWM 2
8. PE6	T3 / INT6	NC
9. PE7	ICP3/INT7	NC
10. PB0	/SS	S8
11. PB1	SCK	S9
12. PB2	MOSI	S10
13. PB3	MISO	S11
14. PB4	OC0	S12
15. PB5	OC1A	S13
16. PB6	OC1B	S14
17. PB7	OC2/OC1C	S15
18. PG3	TOSC2	LED0
19. PG4	TOSC1	LED1
20. /RESET	RESET	RESET
21. VCC	VCC	VCC
22. GND	GND	GND
23. XTAL2	XTAL2	XTAL2
24. XTAL1	XTAL1	XTAL1
25. PD0	SCL / INT0	SCL
26. PD1	SDA / INT1	SDA
27. PD2	RXD1 / INT2	RXD
28. PD3	TXD1 / INT3	TXD
29. PD4	ICP1	NC
30. PD5	XCK1	BUZZER
31. PD6	T1	NC
32. PD7	T2	NC
33. PG0	/WR	NC
34. PG1	/RD	NC
35. PC0	A8	S23
36. PC1	A9	S22
37. PC2	A10	S21
38. PC3	A11	S20

39. PC4	A12	S19
40. PC5	A13	S18
41. PC6	A14	S17
42. PC7	A15	S16
43. PG2	ALE	NOT
44. PA7	AD7	S7
45. PA6	AD6	S6
46. PA5	AD5	S5
47. PA4	AD4	S4
48. PA3	AD3	S3
49. PA2	AD2	S2
50. PA1	AD1	S1
51. PA0	AD0	S0
52. VCC	VCC	VCC
53. GND	GND	GND
54. PF7	ADC7 / TDI	ADC 7
55. PF6	ADC6 / TDO	ADC 6
56. PF5	ADC5 / TMS	ADC 5
57. PF4	ADC4 / TCK	ADC 4
58. PF3	ADC3	ADC 3
59. PF2	ADC2	ADC 2
60. PF1	ADC1	ADC 1
61. PF0	ADC0	ADC 0
62. AREF	VCC	VCC
63. GND	GND	GND
64. AVCC	AVCC is the supply voltage pin for Port F and the A/D Converter.	

NC : Not Connected

? Pinout Description

- Servo motor connection ports (S0-S23) : 24 servo motor signal terminals
- Analog to digital signal conversion ports (AD0-AD7) : 8 AD conversion terminals
- High speed independent PWM ports (PWM0-PWM2) : 3 PWM terminals
- High speed serial communication terminals (RX, TX)
- IR remote control reception terminal (REMOCON-AD7)
- Serial LCD module connection terminal (LCD)
- Piezo connection terminal (PIEZO)
- Serial communication (I2C) terminal (SCL, SDA) : External expansion module terminal
- Power terminal (VCC, GND) : DC 4.5-6.0V power input terminal

? Special Features

- Protection: PREVENTION CHARGE ON POWER.
- Programming TOOL: ROBOBASIC
- CD :

? DOWNLOAD : <http://www.hitecrobotics.com/info/downloads.htm>