

DT-AVR

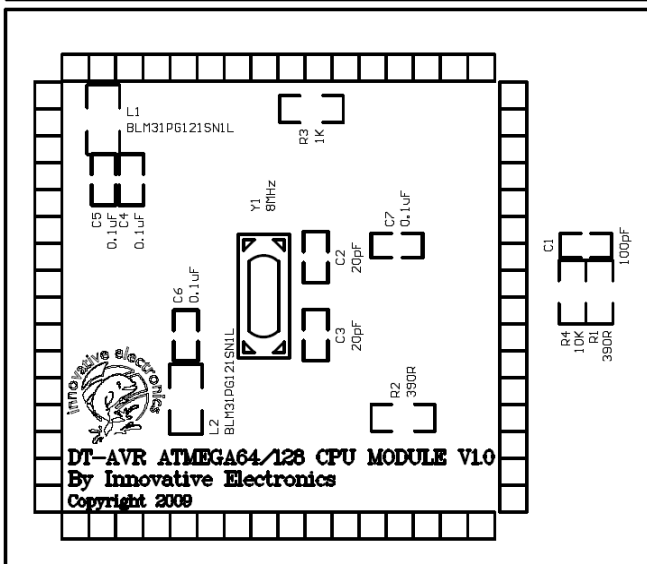
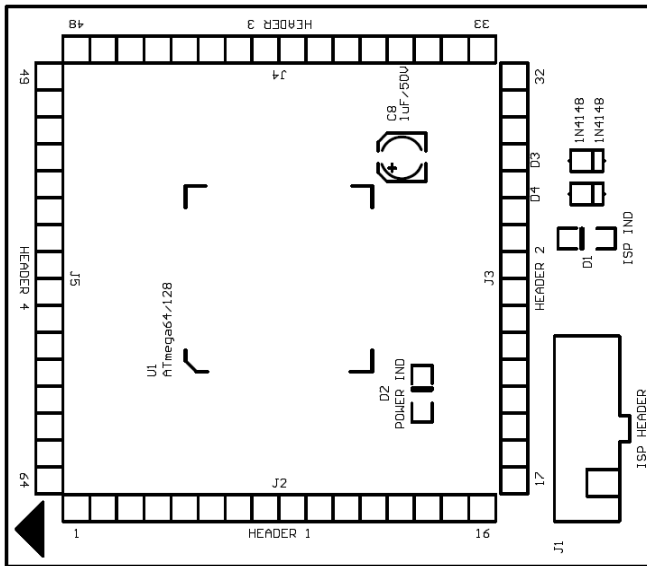
ATMEGA64/128 CPU Module

DT-AVR ATMEGA64/128 CPU Module is an AVR® ATmega64L or ATmega128L based microcontroller module. It features an In-System Programming (ISP). This module can be connect to the DT-COMBO BASE BOARD Series and used for various applications.

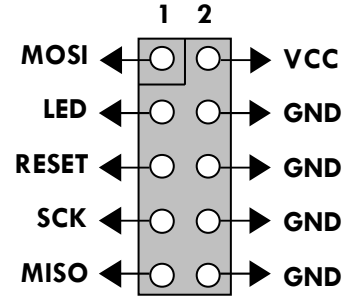
Specifications

1. ATmega64L (64 KB Flash Memory & 2 KB EEPROM) or ATmega128L (128 KB Flash Memory & 4 KB EEPROM) based.
2. Up to 53 Input/Output pins, including 2 8-bits timers/counters, 2 16-bits timers/counters, 2 8-bits PWM channels, 6 16-bits PWM channels, 8 10-bits ADC channels, 2 serial USARTs, watchdog timer, and analog comparator.
3. 8 MHz crystal oscillator.
4. A port for ISP programming.
5. Programming LED indicator.
6. 2.7 – 5.5 Volts DC power supply (VCC).
7. Compatible with the DT-COMBO BASE BOARD Series.

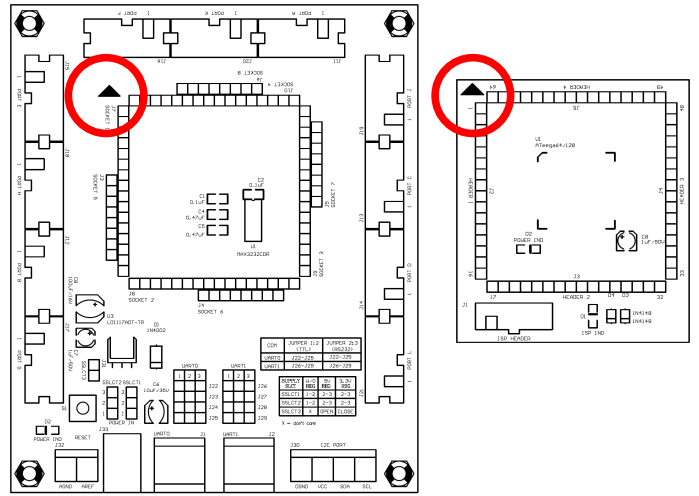
Layout



ISP HEADER (J1) is a connector for ISP programming.



HEADER 1 (J2), HEADER 2 (J3), HEADER 3 (J4), and HEADER 4 (J5) connectors are power supply and input/output lines that can be connected to SOCKET 1 - SOCKET 4 on the DT-COMBO BASE BOARD Series. Use the triangle marks on both modules as reference. Both marks should be in the same position and direction. Also pay attention to the position of the CPU MODULE connectors so that the installation is precisely aligned between pins (not shifted).



HEADER 1			HEADER 2		
No.	Name	Function	No.	Name	Function
1	-	Not connect	17	PB.7	Port B bit 7
2	PE.0	Port E bit 0	18	PG.3	Port G bit 3
3	PE.1	Port E bit 1	19	PG.4	Port G bit 4
4	PE.2	Port E bit 2	20	RST	Reset
5	PE.3	Port E bit 3	21	VCC	Power supply input
6	PE.4	Port E bit 4	22	VCC	
7	PE.5	Port E bit 5	23	PGND	Ground
8	PE.6	Port E bit 6	24	PGND	
9	PE.7	Port E bit 7	25	PD.0	Port D bit 0
10	PB.0	Port B bit 0	26	PD.1	Port D bit 1
11	PB.1	Port B bit 1	27	PD.2	Port D bit 2
12	PB.2	Port B bit 2	28	PD.3	Port D bit 3
13	PB.3	Port B bit 3	29	PD.4	Port D bit 4
14	PB.4	Port B bit 4	30	PD.5	Port D bit 5
15	PB.5	Port B bit 5	31	PD.6	Port D bit 6
16	PB.6	Port B bit 6	32	PD.7	Port D bit 7

HEADER 3			HEADER 4		
No.	Name	Function	No.	Name	Function
33	PG.0	Port G bit 0	49	PA.2	Port A bit 2
34	PG.1	Port G bit 1	50	PA.1	Port A bit 1
35	PC.0	Port C bit 0	51	PA.0	Port A bit 0
36	PC.1	Port C bit 1	52	VCC	Power supply input
37	PC.2	Port C bit 2	53	PGND	Ground
38	PC.3	Port C bit 3	54	PF.7	Port F bit 7
39	PC.4	Port C bit 4	55	PF.6	Port F bit 6
40	PC.5	Port C bit 5	56	PF.5	Port F bit 5
41	PC.6	Port C bit 6	57	PF.4	Port F bit 4
42	PC.7	Port C bit 7	58	PF.3	Port F bit 3
43	PG.2	Port G bit 2	59	PF.2	Port F bit 2
44	PA.7	Port A bit 7	60	PF.1	Port F bit 1
45	PA.6	Port A bit 6	61	PF.0	Port F bit 0
46	PA.5	Port A bit 5	62	AREF	AREF
47	PA.4	Port A bit 4	63	AGND	Ground
48	PA.3	Port A bit 3	64	AVCC	ADC power supply input

Important!

- AVCC and VCC are connected by an inductor.
- PGND and AGND are connected by lines on the PCB.
- Pay attention to the pin order at the DT-AVR ATMEGA64/128 CPU MODULE when connecting it with another module.

CD/DVD Contents

1. CodeVisionAVR[®] evaluation.
2. Testing program for ATmega64L and ATmega128L in CodeVisionAVR[®] C language.
3. Datasheet.
4. DT-AVR ATmega64/128 CPU Module Manual.
5. DT-AVR ATmega64/128 CPU Module Schematic.
6. Innovative Electronics Website.

Testing Procedure

1. This test uses the DT-COMBO BASIC BASE BOARD. Connect DT-AVR ATMEGA64/128 CPU MODULE to it.
2. On the DT-COMBO BASIC BASE BOARD perform these following steps:
 - Release jumper J31 and arrange jumper J34 and J35 to point 2-3.
 - Arrange jumper J22, J23, J24, J25, J26, J27, J28, and J29 to point 2-3.
 - Connect PORT A, PORT B, PORT C, PORT D, PORT E, PORT F, AND PORT G with DT-I/O LED LOGIC TESTER or a series of active low LEDs.
 - Connect J1 (UART0) or J2 (UART1) DT-COMBO BASIC BASE BOARD with the computer serial port using a serial cable.
3. Connect ISP HEADER on the DT-AVR ATMEGA64/128 CPU MODULE with DT-HiQ AVR In System Programmer or other compatible programming tools.

4. Connect a 6.5-12 Volts DC power supply to the DT-COMBO BASIC BASE BOARD DC port. The power LEDs on the DT-AVR ATMEGA64/128 CPU MODULE and DT-COMBO BASIC BASE BOARD will light up. If one or both LEDs do not light up, recheck the connections between the modules and the power supply.
5. Program the **ATMEGA64.PRJ/ATMEGA64.HEX** or **ATMEGA128.PRJ/ATMEGA128.HEX** using DT-HiQ AVR In System Programmer or other compatible programming tools. During the download process, the programming indicator LED will light up.
6. If the download process succeeded, the LEDs connected to Port A, Port B, Port C, Port D, Port E, Port F, and Port G will light up alternately. The LEDs at Port D bit 2 and 3 as well as Port E bit 0 and 1 will not light up because they are used as UART0 and UART1 serial communication lines. While the LEDs on Port G will only light up from bit 0 to bit 4.
7. Run the terminal program on the computer to see the serial data sent by the module to the computer. This serial communication uses the following configuration:
 - Baud rate : 9600 bps
 - Data bit : 8
 - Parity : none
 - Stop bit : 1
 - Flow control : none
8. When using a HEX view (not ASCII), monitor screen will show hex numbers from 00H up to FFH sent repeatedly.

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- ◆ Thank you for your confidence in using our products. If there are difficulties, questions, or suggestions regarding this product, please contact our technical support:

support@innovativeelectronics.com