Weltrend

Weltrend Semiconductor, Inc.

WT6248

Digital Monitor Controller with USB Function

(ROM Type)

Preliminary Data Sheet

REV. 1.01

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2F, No. 24, Industry E. 9th RD., Science-Based Industrial Park, Hsin-Chu, Taiwan
TEL:886-3-5780241 FAX:886-3-5794278.5770419
Email:support@weltrend.com.tw

GENERAL DESCRIPTION

The WT6248 is a microcontroller for digital controlled monitor with Universal Serial Bus (USB) interface. It contains an 8-bit CPU, 48K bytes ROM, 1056 bytes RAM, 14 PWMs, parallel I/Os, SYNC signal processor, timer, DDC1/2B interface, master/slave I^2C interface, low speed USB device module, 6-bit A/D converter and watch-dog timer.

FEATURES

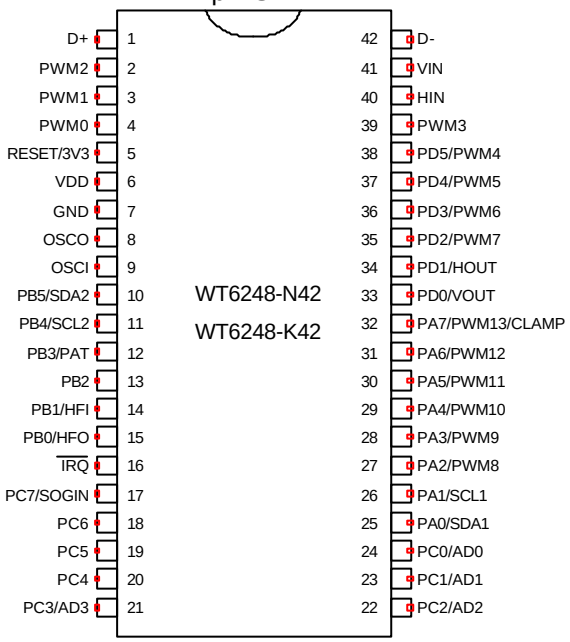
- 8-bit 6502 compatible CPU with 6MHz operating frequency
- 48K bytes ROM, 1024 bytes SRAM+32 bytes bit-addressable SRAM
- 12MHz crystal oscillator
- 14 channels 8-bit PWM outputs
- Sync signal processor with H+V separation, H/V frequency counter, H/V polarity detection/control and clamp pulse output
- Six free-running sync signal outputs (Horizontal frequency up to 106KHz 85Hz@1600x1200)
- Self-test pattern
- DDC1/2B module for EDID1.3, EDID2.0 and Enhance EDID
- Fast mode master/slave I^2C interface (up to 400KHz)
- Embedded USB function with endpoint 0 and endpoint 1
- Built-in 3.3V regulator for USB transceiver
- Watch-dog timer
- Maximum 28 programmable I/O pins
- One 8-bit programmable timer
- 6-bit A/D converter with 4 selectable inputs
- One external interrupt request input
- Low V_{DD} reset

ORDERING INFORMATION

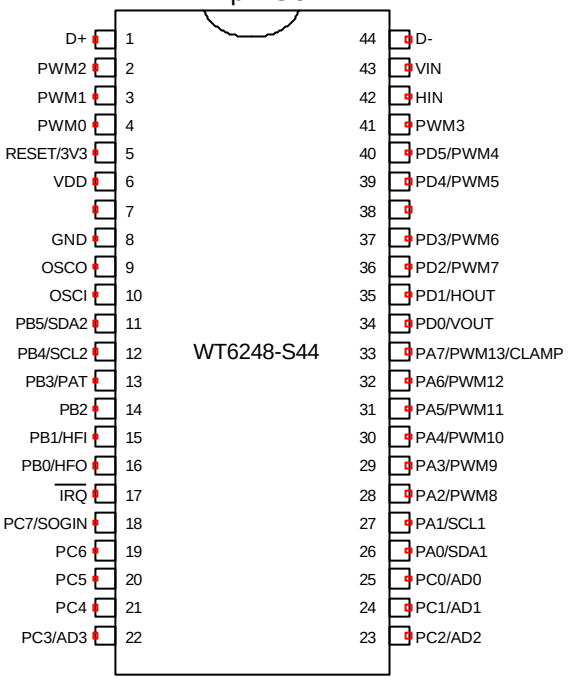
Package Type	Part Number
42-pin PDIP	WT6248-N42
42-pin Shrink PDIP	WT6248-K42
44-pin SOP	WT6248-S44
44-pin PLCC	WT6248-L44

PIN CONFIGURATION

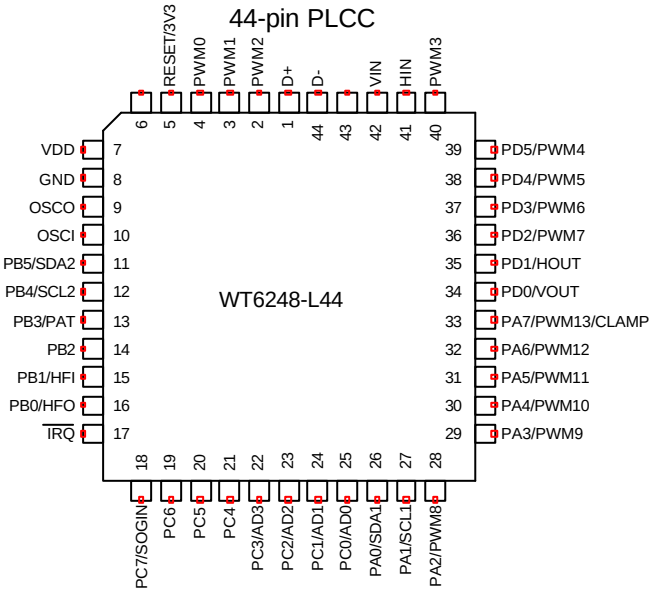
42-pin PDIP
42-pin SPDIP



44-pin SOP



44-pin PLCC



PIN DESCRIPTION

L44	S44	42	Pin Name	I/O	Description
1	1	1	D+	I/O	USB D+ signal.
2	2	2	PWM2	O	PWM2 output (10V open-drain).
3	3	3	PWM1	O	PWM1 output (5V open-drain).
4	4	4	PWM0	O	PWM0 output (5V open-drain).
5	5	5	/RESET/3V3	I	Reset input or +3.3V regulator output for USB transceiver power
6	-	-	NC		No Connection.
7	6	6	VDD		+5V power supply.
-	7	-	NC		No Connection.
8	8	7	GND		Ground.
9	9	8	OSCO	I/O	12MHz oscillator output.
10	10	9	OSCI	I	12MHz oscillator input.
11	11	10	PB5/ SDA2	I/O	Port B5 or I^2C interface data line.
12	12	11	PB4/ SCL2	I/O	Port B4 or I^2C interface clock line.
13	13	12	PB3/PAT	I/O	Port B3 or test pattern output
14	14	13	PB2	I/O	Port B2.
15	15	14	PB1/HFI	I/O	Port B1 or half frequency divider input.
16	16	15	PB0/HFO	I/O	Port B0 or half frequency divider output.
17	17	16	/IRQ	I	Interrupt request input. A low level on this can generate interrupt.
18	18	17	PC7/SOGIN	I/O	Port C7 or Sync on Green input.
19	19	18	PC6	I/O	Port C6.
20	20	19	PC5	I/O	Port C5.
21	21	20	PC4	I/O	Port C4.
22	22	21	PC3/AD3	I/O	Port C3 or ADC input 3.
23	23	22	PC2/AD2	I/O	Port C2 or ADC input 2.
24	24	23	PC1/AD1	I/O	Port C1 or ADC input 1.
25	25	24	PC0/AD0	I/O	Port C0 or ADC input 0.
26	26	25	PA0/SDA1	I/O	Port A0 or DDC interface SDA pin.
27	27	26	PA1/SCL1	I/O	Port A1 or DDC interface SCL pin.
28	28	27	PA2/PWM8	I/O	Port A2 or PWM8 output.
29	29	28	PA3/PWM9	I/O	Port A3 or PWM9 output.
30	30	29	PA4/PWM10	I/O	Port A4 or PWM10 output.
31	31	30	PA5/PWM11	I/O	Port A5 or PWM11 output.
32	32	31	PA6/PWM12	I/O	Port A6 or PWM12 output.
33	33	32	PA7/PWM13/ CLAMP	I/O	Port A7 or PWM13 output or clamp pulse output.
34	34	33	PD0/VOUT	I/O	Port D0 or Vsync output.
35	35	34	PD1/HOUT	I/O	Port D1 or Hsync output.
36	36	35	PD2/PWM7	I/O	Port D2 or PWM7 output.
37	37	36	PD3/PWM6	I/O	Port D3 or PWM6 output.
-	38	-	NC		No Connection.
38	39	37	PD4/PWM5	I/O	Port D4 or PWM5 output.
39	40	38	PD5/PWM4	I/O	Port D5 or PWM4 output.
40	41	39	PWM3	I/O	PWM3 output (10V open-drain).
41	42	40	HIN	I	Hsync Input.
42	43	41	VIN	I	Vsync input.
43	-	-	NC		No Connection.
44	44	42	D-	I/O	USB D- signal.