

CMA8860

PENTIUM™ CPU/PCI system Clock Generator with Buffer

FEATURES

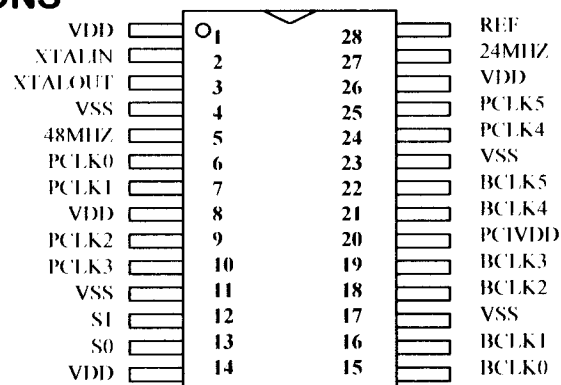
- Clock generator for Pentium™ Pro or Pentium™ Processor/PCI motherboard supports INTEL Triton VX and SDRAM with:
 - ✧ 6 CPU clock outputs selectable (50MHz, 55MHz, 60MHz, 66.67MHz, 75MHz)
 - ✧ 6 PCI clock outputs (CPUCLOCK/2)
 - ✧ 1 Floppy clock output 24MHz
 - ✧ 1 USB clock output 48MHz
 - ✧ 1 Reference clock output 14.318MHz
- Low Skew outputs
 - ✧ 250ps between CPU clocks
 - ✧ 500ps between PCI clocks
 - ✧ CPU clock leads PCI clock by 1ns to 4ns
- Low CPU clock jitter <250ps cycle to cycle
- 20 Ohm clock output impedance
- 14.318 MHz input reference frequency
- Built-in crystal oscillator circuit
- On chip PLL with internal loop filter
- CMOS process with +5Vdd/+3.3Vdd power supply
- 28 pins 300mil SOIC package

GENERATOR DESCRIPTION

The CMA8860 is a low cost frequency generator designed specially for Pentium processor PCI bus PC system. It provides selectable CPU and PCI clock frequency and fixed clock outputs for other system functions. The integrated output buffers minimize clock skew and guarantee the phase delay between CPU and PCI CLOCKS. Both CPU and PCI clock outputs meet the 1V/ns slew rate requirement of the Pentium based system.

The CMA8860 has on-chip PLL design with internal loop filter for high frequency stability. Low power CMOS process provides signal +5Vdd and +3Vdd power operation.

PIN CONFIGURATIONS



PIN DESCRIPTION

NAME	TYPE	NO.	DESCRIPTION
VDD	P	1	Analog Power Supply
XTALIN	I	2	Crystal input or reference clock input
XTALOUT	O	3	Crystal output, no connection when clock input
VSS	P	4	Analog Ground
48MHZ	O	5	USB clock output 48MHz
PCLK0	O	6	CPU output clock
PCLK1	O	7	CPU output clock
VDD	P	8	Digital power supply
PCLK2	O	9	CPU output clock
PCLK3	O	10	CPU output clock
VSS	P	11	Digital Ground.
S1	I	12	CPU clock freq. Select 1, internal pull-high
S0	I	13	CPU clock freq. Select 0, internal pull-high
VDD	P	14	Digital Power Supply
BCLK0	O	15	PCI bus output clock
BCLK1	O	16	PCI bus output clock
VSS	P	17	Digital Ground
BCLK2	O	18	PCI bus output clock
BCLK3	O	19	PCI bus output clock
PCIVDD	P	20	Digital Power Supply for PCI output clock
BCLK4	O	21	PCI bus output clock
BCLK5	O	22	PCI bus output clock
VSS	P	23	Digital Ground
PCLK4	O	24	CPU output clock
PCLK5	O	25	CPU output clock
VDD	P	26	Digital Power Supply
24MHZ	O	27	Floppy disk output clock 24MHz
REF	O	28	Reference clock output (14.318MHz)

CPU CLOCK FREQUENCY TABLE (in MHz)

S1	S0	PCLK/-55	BCLK/-55	PCLK/-75	BCLK/-75	REF	24MHz	48MHz
0	0	50	25	50	25	14.318	24	48
0	1	66.67	33.33	66.67	33.33	14.318	24	48
1	0	60	30	60	30	14.318	24	48
1	1	55	25	75	37.5	14.318	24	48

ABSOLUTE MAXIMUM RATINGS

RATING	VALUE
Power Supply Voltage (VDD)	+3.0V to 5.5V
Applied Input Voltage	-0.5V to VDD +0.5V
Output Voltage	-0.5V to VDD +0.5V
Operating Temperature	0 to 70°C
Storage Temperature	-65 to 150°C
Power Dissipation	1.0 Watts

NOTICE: Stresses above those listed under ABSOLUTE MAXIMUM RATINGS may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect product reliability.

DC CHARACTERISTICS (Temperature = 0 to 70°C, VDD = 5V +/- 10%)

SYMBOL	PARAMETER	MIN.	TYP.	MAX.	UNIT	CONDITION
VDD	Supply Voltage	4.5	5	5.5	V	No load, PCLK = 66MHz VDD=5V VDD=5V Iol=24mA Iol=24mA
Idd	Supply Current		80	150	mA	
Vil	Input Low Voltage			0.8	V	
Vih	Input High Voltage	2.0			V	
Vol	Output Low Voltage			0.4	V	
Voh	Output High Voltage	2.4			V	
Routput	Output Impedance		25	40	Ohm	
Rpullup	Pull-up Resistance		1Meg		Ohm	

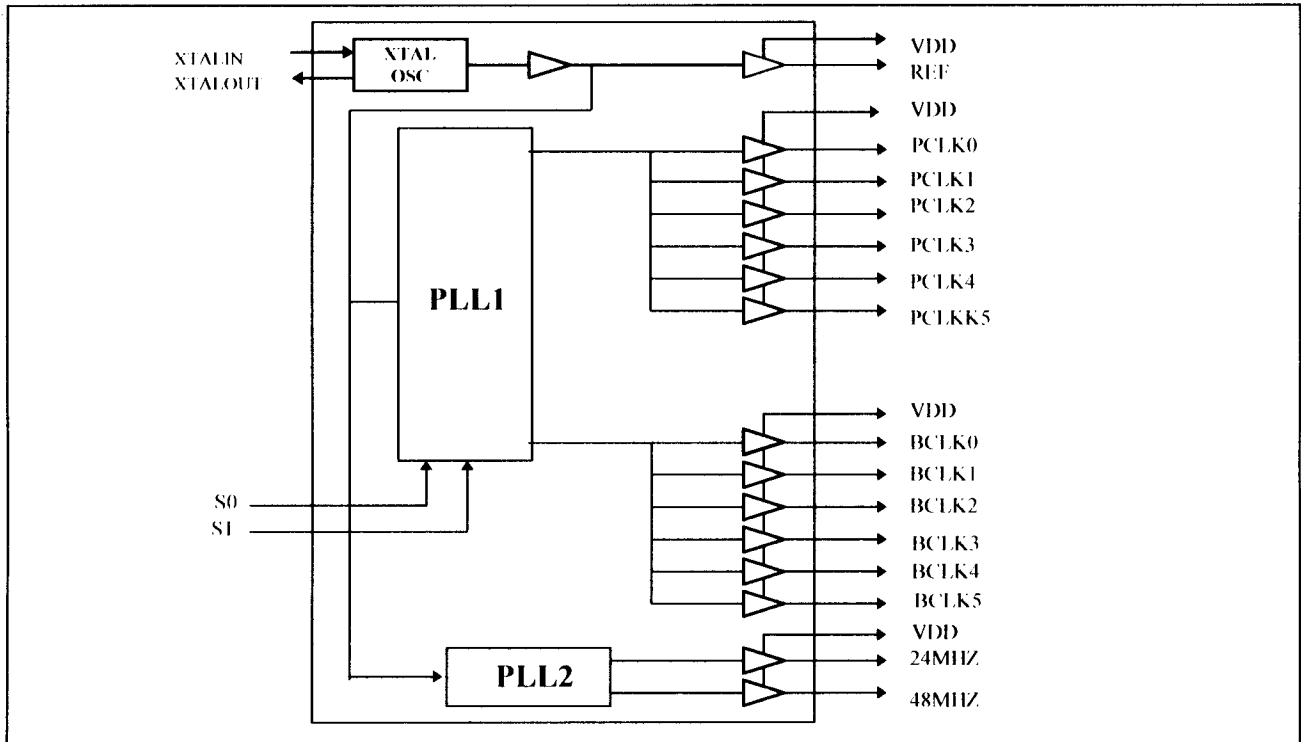
DC CHARACTERISTICS (Temperature = 0 to 70°C, VDD = 3.3V +/- 10%)

SYMBOL	PARAMETER	MIN.	TYP.	MAX.	UNIT	CONDITION
VDD	Supply Voltage	3.0	3.3	3.6	V	No load, PCLK = 66MHz VDD=3.3V VDD=3.3V Iol=24mA Iol=24mA
Idd	Supply Current		50	90	mA	
Vil	Input Low Voltage			0.8	V	
Vih	Input High Voltage	2.0			V	
Vol	Output Low Voltage			0.4	V	
Voh	Output High Voltage	2.4			V	
Routput	Output Impedance		25	40	Ohm	
Rpullup	Pull-up Resistance		1Meg		Ohm	

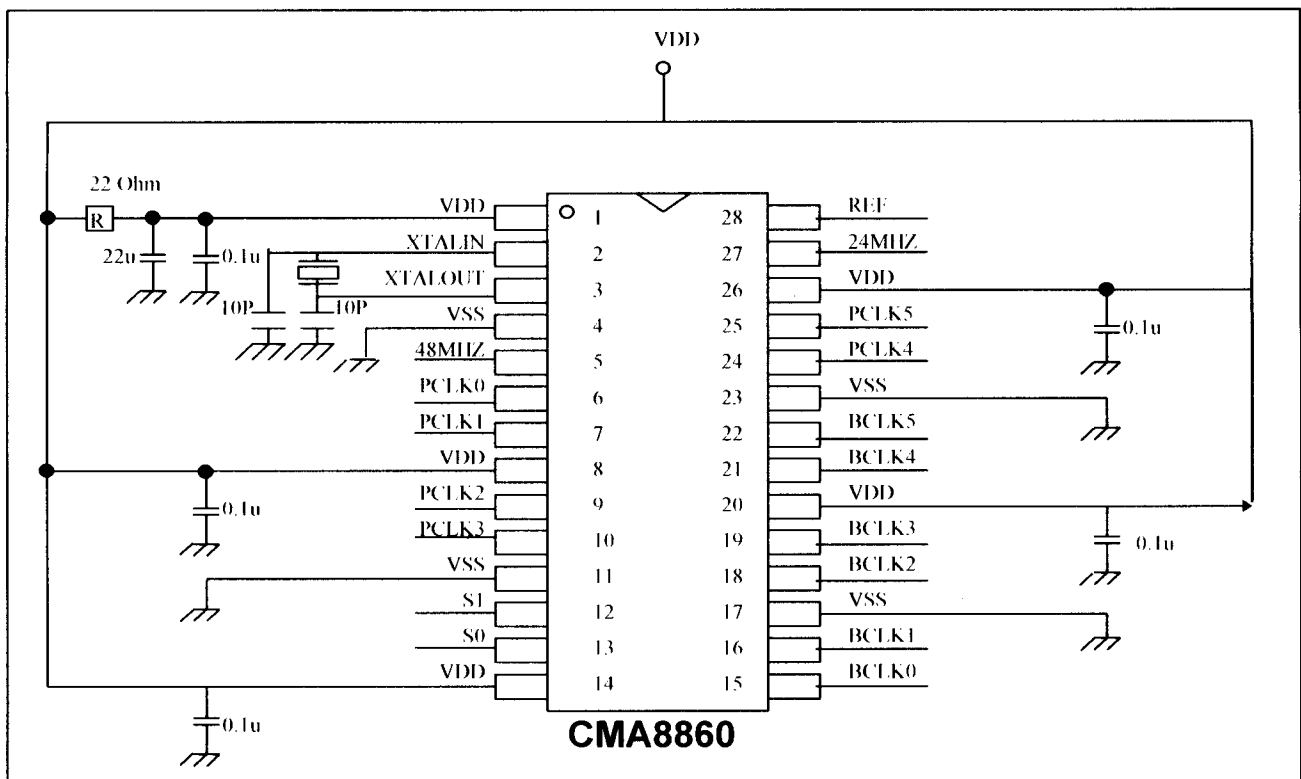
AC CHARACTERISTICS (Temperature = 0 to 70°C, VDD = 3.3V +/- 10%)

SYMBOL	PARAMETER	MIN.	TYP.	MAX.	UNIT	CONDITION
Txclk _r	Input Clock Rise Time			20	ns	20pf load
Txclk _f	Input Clock Fall Time			20	ns	
Tor	Output Clock Rise Time	0.4		1.6	ns	
Tof	Output Clock Fall Time	0.4		1.6	ns	
Dot	Output Clock Duty Cycle	45	48/52	55	%	20pf load
Fref	Reference clock Freq.		14.318		MHz	
Tskew1	CPU-CPU Clock Skew			250	ps	20pf load
Tskew2	PCI-PCI bus clock skew			500	ps	30pf load
Tskew3	CPU-PCI bus clock skew	1		4	ns	CPU leads PCI
Tjitter	CPU Cycle-cycle jitter			250	ps	20pf load

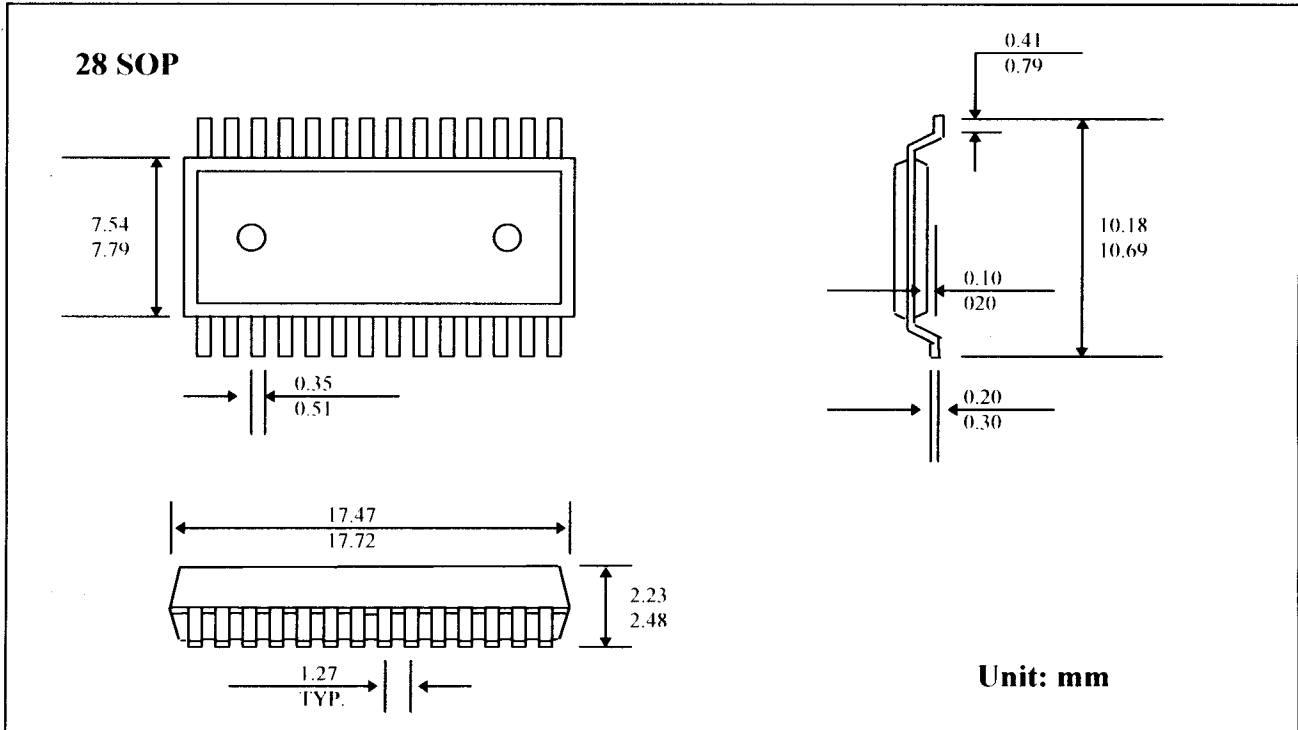
BLOCK DIAGRAM



APPLICATION DIAGRAM



PACKAGE DIMENSION



聯訊電子 企業股份有限公司

C-Media Electronics Inc.

C-MEDIA ELECTRONICS INC.

6F., 100, Sec. 4 Civil Boulevard,
Taipei, Taiwan, ROC

聯訊電子企業股份有限公司

台北市市民大道四段 100 號 6 樓

TEL: (02) 8773-1100 FAX: (02) 8773-2211