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April 1st, 2010 Renesas Electronics Corporation

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M3776AM8H/MCH/MFH-XXXGP

SINGLE-CHIP 16-BIT CMOS MICROCOMPUTER

REJ03B0145-0100 Rev.1.00 Mar 08, 2005

1. DESCRIPTION

This microcomputer is a single-chip microcomputer that adopts a high-performance silicon gate CMOS process, and is contained in a 100-pin plastic mold QFP. This single-chip microcomputer is provided with an instruction queue buffer and a data buffer for executing instructions at high speed. The central processing unit runs in a 16-bit parallel processing mode but can be converted into an 8-bit parallel processing mode when necessary. This product has been designed exclusively for video equipment system controls, incorporating a time measuring circuit for VCR servo control, a real-time pattern generating circuit, analog amplifiers, an OSD display circuit, and a data slicer, among its many other peripheral capabilities.

1.1 FEATURES

1.1 FEATUR	ES	
●Number of basis	c instructions	
Memory size	RAM	M3776AM8H-XXXGP:2048bytes
		M3776AMCH-XXXGP:2560bytes
		M3776AMFH-XXXGP:3072bytes
	ROM	M3776AM8H-XXXGP:64kbytes
		M3776AMCH-XXXGP:96kbytes
		M3776AMFH-XXXGP:120kbytes
●Instruction exec	ution time	
(fastest instruct	ion, 16 MHz h	igh-speed mode) 250 ns
(fastest instruct	ion, 12 MHz d	louble-speed mode)
		167 ns
●Single power so	ource	
In 16 MHz high-	-speed mode	
(OSD/data slice	er off)	4.0 V to 5.5 V
(OSD/data slice	er on)	4.75 V to 5.25 V
In 12 MHz doub	le-speed mod	de
(OSD/data slice	er off)	4.0 V to 5.5 V
(OSD/data slice	er on)	4.75 V to 5.25 V
In 32 kHz low-s	peed mode	
(OSD/data slice	er off)	2.6 V to 5.5 V
●OSD power sou	rce	4.75 V to 5.25 V
●Interrupt		23 factors, 6 levels
●16-bit timer		3
●8-bit timer		3
●Clock-synchron	ous serial I/O	2
(one of which ca	an perform au	tomatic 64-byte transfers)
●I ² C-Bus interfac	e (single mas	ter) 1
		nit (11 channel inputs)
●8-bit D/A conver	ter	2
●12/14-bit PWM .		2
●14-bit PWM		1
●Time measurem	nent circuit (TN	MT)
One counter for	or measurinç	g time to generate input signals
DRFG, CPFG, (CPPG, VSYN	G, and GEN
One counter fo	r measuring t	ime to generate input signals RLS
and RLT		

- Amplification circuits
 - CTL head control circuit, CTL amplifier, CTL schmidt circuit, drum PG circuit, drum FG circuit, capstan FG circuit, capstan FG amplifier circuit
- Pulse duty detection circuit (VISS and VASS signal detection features embedded) Measures PBCTL signal duty ratio.
- Synchronous signal separation circuit
- ●EOR output feature (HASW, CROT)2-bit output
- Watchdog timer

- ●4 Embedded clock-generating circuits
 Built-in feed-back resistor between XIN–XOUT
 Built-in feed-back resistor between XCIN–XCOUT
- ●CPU double-speed enable (f(XIN) max. 12.0 MHz)
- ●ROM correction function included
- ●OSD function

Display characters	32 characters	X 16 lines
Kinds of characters	. Composite Output	254 kinds
	RGB Output	285 kinds
Kinds of character sizes		8 kinds
Output method Composite v	rideo signal, RGB ou	utput (PAL,
MPAL, NTS	C, NPAL)	
Special function Dis	splay with backgrour	nd shadow
(bu	ıtton display)	

On-chip sync correct circuit (AFC)

Data slicerOn-chip slicer for XDS

1.2 APPLICATION

VCR, TVCR

Remote-control noise filter (majority of 4 samplings)

Outputs real-time pattern to exterior, RECCTL signal to CTL head control circuit, trigger for start the A/D converter, trigger for

●Real-time pattern (RTP) generation circuit

starting OSD vertical display

REVISION HISTORY

M3776AM8H/MCH/MFH-XXXGP

Rev.	Date		Description		
		Page	Summary		
1.00	Mar 08, 2005	_	First edition issued		