OSOROM Peripheral Reference

The Moroso Project

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Contents

Chapter 1

Onboard Peripherals

1.1 Introduction

The OSOROM will include several onboard peripherals:

- A programmable timer
- A serial port
- A video controller
- An SD card controller
- A USB controller?

Access to all peripherals is through memory mapped registers; each peripheral has its own page of physical address space for control registers.

1.2 Peripheral Reference

1.2.1 Register Map

Timer	`TIMER_COUNT`
	`TIMER_TOP`
	`TIMER_CONTROL`
		`0x80000000`
		`0x80000004`
		`0x80000008`

Serial Port		`0x80001000`
Video Controller		`0x80002000`
SD Controller		`0x80003000`
USB Controller		`0x80004000`

1.3 Timer

Each clock tick, the `TIMER_COUNT` register is incremented. If this value matches the value in the `TIMER_TOP` register, `TIMER_COUNT` is cleared and the `TIMER_INT` bit in `TIMER_CONTROL` is set.

1.3.1 Registers

TIMER_COUNT

31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
TIMER_COUNT															
rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
TIMER_COUNT															
rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw

Bits 31:0 `TIMER_COUNT`: The current count, incremented each tick and reset to 0 when it matches the value in `TIMER_TOP`.

TIMER_TOP

31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
TIMER_TOP															
rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
TIMER_TOP															
rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw	rw

Bits 31:0 `TIMER_TOP`: The top value for the timer. When `TIMER_COUNT` is equal to this value, `TIMER_COUNT` will be reset to 0 and the `TIMER_INT` bit of `TIMER_CONTROL` will be set.

TIMER_CONTROL

31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
(reserved)															

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
(reserved)													TIMER_EN	TIMER_INT_EN	TIMER_INT
													rw	rw	rw

Bit 2 `TIMER_EN`: Timer enable bit. The counter will be paused if this bit is set to 0.

Bit 1 `TIMER_INT_EN`: Timer interrupt enable. If this bit and `TIMER_INT` are both set, a timer interrupt will be generated.

Bit 0 `TIMER_INT`: Timer interrupt flag. Set by hardware when `TIMER_COUNT` is equal to `TIMER_TOP`.

1.4 Serial Port

1.5 Video Controller

1.6 SD Card Controller

1.7 USB Controller