X3M Register Reference Manual RTC

Revision History

Revision	Date	Description
1.0	September-18-2020	Initial Release

RTC	BASE_ADDR: 0xA6002000					
	Offset	Register Name	Access	Bits	Field Name	Default Value	Description
	04H	RTC_ctrl	RW				RTC Control Register
				[31:10]	Reserved		
				[9]	En_rtc	1'h0	Real time date&time enable, high active.
				[8]	En_tick	1'h0	Tick enable, high active.
				[7]	En_alarm	1'h0	Alarm enable, high active.
				[6]	En_alarm_year	1'h0	Alarm enable for the year register, high active.
				[5]	En_alarm_month	1'h0	Alarm enable for the month register, high active.
				[4]	En_alarm_day	1'h0	Alarm enable for the day register, high active.
				[3]	En_alarm_weekday	1'h0	Alarm enable for the weekday register, high active.
				[2]	En_alarm_hour	1'h0	Alarm enable for the hour register, high active.
				[1]	En_alarm_minute	1'h0	Alarm enable for the minute register, high active.
				[0]	En_alarm_second	1'h0	Alarm enable for the second register, high active.
	0CH	Second_define_value	RW				Second Definition Register
				[31:16]	Reserved		
				[15:0]	Second_define_value	16'h3ff	Second definition value Flag_second=RTC_1k_clk/(Second_define_value+1)
	10H	Time_setting_value	RW				RTC Time Setting Register
				[31:27]	Reserved		
				[26:24]	Weekday	3'h1	Sets the weekday value of the RTC time with BCD code. D1 ~ d7 mean Monday, Tuesday, Wednesday, Thursday, Friday, Saturday and Sunday.
				[23:22]	Reserved		
				[21:16]	Hour	6'h0	Sets the hour value of the RTC time with BCD code d0 ~ d23.
				[15]	Reserved		
				[14:8]	Minute	7'h0	Sets the minute value of the RTC time with BCD code d0 ~ d59.
				[7]	Reserved		
				[6:0]	Second	7'h0	Sets the second value of the RTC time with BCD code d0 ~ d59.
	14H	Date_setting_value	RW				RTC Date Setting Register

	BASE_ADDR: 0xA6002000					
RTC						
Offset	Register Name	Access	Bits	Field Name	Default Value	Description
			[31:16]	Year	16'h2000	Sets the year value of the RTC date with BCD code d0000 ~ d9999.
			[15:13]	Reserved		
			[12:8]	Month	5'h1	Sets the month value of the RTC date with BCD code. D1 ~ d12 mean January, February, March, April, May, June, July, August, September, October, November and December.
			[7:6]	Reserved		
			[5:0]	Day	6'h1	Sets the day value of the RTC date with BCD code d1 ~ d31.
18H	Current_millisecond_value	RO				RTC Current Millisecond Value Register
			[31:16]	Reserved		
			[15:0]	Current_millisecond_value	16'h0	Current millisecond value
1CH	Current_time_value	RO				RTC Current Time Value Register
			[31:27]	Reserved		
			[26:24]	Weekday	3'h1	Current weekday value, BCD code. D1 ~ d7 mean Monday, Tuesday, Wednesday, Thursday, Friday, Saturday and Sunday.
			[23:22]	Reserved		
			[21:16]	Hour	6'h0	Current hour value, BCD code d0 ~ d23.
			[15]	Reserved		
			[14:8]	Minute	7'h0	Current minute value, BCD code d0 ~ d59.
			[7]	Reserved		
			[6:0]	Second	7'h0	Current second value, BCD code d0 ~ d59.
20H	Current_date_value	RO				RTC Current Date Value Register
			[31:16]	Year	16'h2000	Current year value, BCD code d0000 ~ d9999.
			[15:13]	Reserved		
			[12:8]	Month	5'h1	Current month value, BCD code. D1 ~ d12 mean January, February, March, April, May, June, July, August, September, October, November and December.
			[7:6]	Reserved		
			[5:0]	Day	6'h1	Current day value, BCD code d1 ~ d31.

RTC	BASE_ADDR: 0xA6002000						
	Offset	Register Name	Access	Bits	Field Name	Default Value	Description
	24H	Alarm_time_value	RW				Alarm Time Setting Register
				[31:27]	Reserved		
				[26:24]	Alarm_weekday_value	3'h1	Sets the weekday value of the alarm time with BCD code. D1 ~ d7 mean Monday, Tuesday, Wednesday, Thursday, Friday, Saturday and Sunday.
				[23:22]	Reserved		
				[21:16]	Alarm_hour_value	6'h0	Sets the hour value of the alarm time with BCD code d0 ~ d23.
				[15]	Reserved		
				[14:8]	Alarm_minute_value	7'h0	Sets the minute value of the alarm time with BCD code d0 ~ d59.
				[7]	Reserved		
				[6:0]	Alarm_second_value	7'h0	Sets the second value of the alarm time with BCD code d0 ~ d59.
	28H	Alarm_date_value	RW				Alarm Date Setting Register
				[31:16]	Alarm_year_value	16'h2000	Sets the year value of the alarm date with BCD code d0000 ~ d9999.
				[15:13]	Reserved		
				[12:8]	Alarm_month_value	5'h1	Sets the month value of the alarm date with BCD code. D1 ~ d12 mean January, February, March, April, May, June, July, August, September, October, November and December.
				[7:6]	Reserved		
				[5:0]	Alarm_day_value	6'h1	Sets the day value of the alarm date with BCD code d1 ~ d31.
	2CH	Tick_ckd	RW				Divider Value for Tick Register
				[31:16]	Reserved		
				[15:0]	Tick_ckd	16'h0001	Divider value for tick Interrupt frequency of tick = RTC_1k_clk/(tick_ckd+1)
	30H	Current_tick_value	RO				Current Tick Value Register
				[31:16]	Reserved		
				[15:0]	Current_tick_value	16'h0	Current tick value
	34H	RTC_src_pnd	RW				RTC Interrupt Source Pending Register
				[31:2]	Reserved		

RTC	**BASE_ADDR: 0xA6002000**					
Offset	**Register Name**	**Access**	**Bits**	**Field Name**	**Default Value**	**Description**
			[1]	Src_pnd_tick	1'h0	This bit indicates whether the tick interrupt source is pending: 0: The tick interrupt source is inactive. 1: The tick interrupt source is active. Writing 1 to this bit will clear the corresponding interrupt source.
			[0]	Src_pnd_alarm	1'h0	This bit indicates whether the alarm interrupt source is pending: 0: The alarm interrupt source is inactive. 1: The alarm interrupt source is active. Writing 1 to this bit will clear the corresponding interrupt source.
38H	RTC_int_mask	RO				RTC Interrupt Mask Register
			[31:2]	Reserved		
			[1]	Int_mask_tick	1'h1	Interrupt mask for tick: 0: Unmasked. 1: Masked.
			[0]	Int_mask_alarm	1'h1	Interrupt mask for alarm: 0: Unmasked. 1: Masked.
3CH	RTC_set_mask	WO				This register is used to mask RTC interrupts.
			[31:2]	Reserved		
			[1]	Set_mask_tick	1'h0	Sets mask for the RTC tick interrupt: 0: No effect. 1: Masks the RTC tick interrupt. Int_mask_tick is set to high.
			[0]	Set_mask_alarm	1'h0	Sets mask for the RTC alarm interrupt: 0: No effect. 1: Masks the RTC alarm interrupt. Int_mask_alarm is set to high.
40H	RTC_unmask	WO				This register is used to unmask RTC interrupts.
			[31:2]	Reserved		
			[1]	Unmask_tick	1'h0	Unmask for the RTC tick interrupt: 0: No effect. 1: Unmasks the RTC tick interrupt. Int_mask_tick is set to low.
			[0]	Unmask_alarm	1'h0	Unmask for the RTC alarm interrupt: 0: No effect. 1: Unmasks the RTC alarm interrupt. Int_mask_alarm is set to low.