RTC Driver
User Guide
V1.00.01

1. Constant Definition

Constant Name	Value	Description
DRVRTC_INIT_KEY	0xa5eb1357	A key number to reset all RTC logic
DRVRTC_WRITE_KEY	0xA965	A key number to unlock protected regiser
DRVRTC_CLOCK_12	0	12-Hour mode
DRVRTC_CLOCK_24	1	24-Hour mode
DRVRTC_AM	1	a.m.
DRVRTC_PM	2	p.m.
DRVRTC_YEAR2000	2000	Set the year is 2000.
DRVRTC_FCR_REFERENCE	32761	A reference value to compensate 32MHz

2. Type Definition

E_DRVRTC_INT_SOURCE

Enumeration identifier	Value	Description
DRVRTC_ALARM_INT	1	Set alarm interrupt
DRVRTC_TICK_INT	2	Set tick interrupt
DRVRTC_ALL_INT	3	Set alarm and tick interrupt

E_DRVRTC_TICK

Enumeration identifier	Value	Description
DRVRTC_TICK_1_SEC	0	Set tick period 1 tick per second
DRVRTC_TICK_1_2_SEC	1	Set tick period 2 tick per second
DRVRTC_TICK_1_4_SEC	2	Set tick period 4 tick per second
DRVRTC_TICK_1_8_SEC	3	Set tick period 8 tick per second
DRVRTC_TICK_1_16_SEC	4	Set tick period 16 tick per second
DRVRTC_TICK_1_32_SEC	5	Set tick period 32 tick per second

DRVRTC_TICK_1_64_SEC	6	Set tick period 64 tick per second
DRVRTC_TICK_1_128_SEC	7	Set tick period 128 tick per second

E_DRVRTC_TIME_SELECT

Enumeration identifier	Value	Description
DRVRTC_CURRENT_TIME	0	Select current time option
DRVRTC_ALARM_TIME	1	Select alarm time option

E_DRVRTC_DWR_PARAMETER

Enumeration identifier	Value	Description
DRVRTC_SUNDAY	0	Day of Week: Sunday
DRVRTC_MONDAY	1	Day of Week: Monday
DRVRTC_TUESDAY	2	Day of Week: Tuesday
DRVRTC_WEDNESDAY	3	Day of Week: Wednesday
DRVRTC_THURSDAY	4	Day of Week: Thursday
DRVRTC_FRIDAY	5	Day of Week: Friday
DRVRTC_SATURDAY	6	Day of Week: Saturday

3. Functions

DrvRTC_SetFrequencyCompensation

Prototype

int32_t DrvRTC_SetFrequencyCompensation (float fnumber;);

Description

Set Frequency Compensation Data

Parameter

fnumber [in]

Specify the Compensation value.

Include

Driver/DrvRTC.h

Return Value

E_SUCCESS: Success

E_DRVRTC_ERR_FCR_VALUE: Wrong Compensation value

DrvRTC_WriteEnable

Prototype

int32_t DrvRTC_WriteEnable (void);

Description

Access Password to AER to make access other register enable

Include

Driver/DrvRTC.h

Return Value

E_SUCCESS: Success

E_DRVRTC_ERR_FAILED : Failed.

DrvRTC_Init

Prototype

int32_t DrvRTC_Init (void);

Description

Initial RTC

Include

Driver/DrvRTC.h

Return Value

E_SUCCESS: Success

E_DRVRTC_ERR_EIO : Initial RTC Failed.

DrvRTC_Read

Prototype

int32_t DrvRTC_Read (
E_DRVRTC_TIME_SELECT eTime,
S_DRVRTC_TIME_DATA_T *sPt
);

Description

Read current date/time or alarm date/time from RTC

Parameter

eTime [in]

Specify the current/alarm time to be read.

DRVRTC_CURRENT_TIME: Current time

DRVRTC_ALARM_TIME: Alarm time

***sPt [in]**

Specify the buffer to store the data read from RTC. It includes

u8cClockDisplay : DRVRTC_CLOCK_12 / DRVRTC_CLOCK_24

u8cAmPm : DRVRTC_AM / DRVRTC_PM

u32cSecond : Second value

u32cMinute : Minute value

u32cHour : Hour value

u32cDayOfWeek : Day of week

u32cDay : Day value

u32cMonth : Month value

u32Year : Year value

pfnAlarmCallBack : The alarm call back function pointer

Include

Driver/DrvRTC.h

Return Value

E_SUCCESS: Success

E_DRVRTC_ERR_ENOTTY: Command not support or parameter incorrect

DrvRTC_Write

Prototype

```
int32_t DrvRTC_Write (
E_DRVRTC_TIME_SELECT eTime,
S_DRVRTC_TIME_DATA_T *sPt
);
```

Description

Set current date/time or alarm date/time to RTC

Parameter

eTime [in]

Specify the current/alarm time to be written.

DRVRTC_CURRENT_TIME: Current time

DRVRTC_ALARM_TIME: Alarm time

***sPt [in]**

Specify the data to write to RTC. It includes

u8cClockDisplay : DRVRTC_CLOCK_12 / DRVRTC_CLOCK_24

u8cAmPm : DRVRTC_AM / DRVRTC_PM

u32cSecond : Second value

u32cMinute : Minute value

u32cHour : Hour value

u32cDayOfWeek : Day of week

u32cDay : Day value

u32cMonth : Month value

u32Year : Year value

pfnAlarmCallBack : The alarm call back function pointer

Include

Driver/DrvRTC.h

Return Value

E_SUCCESS: Success

E_DRVRTC_ERR_EIO : Initial RTC Failed.

E_DRVRTC_ERR_ENOTTY: Command not support or parameter incorrect.

E_DRVRTC_ERR_ENODEV: Interface number incorrect.

DrvRTC_IsLeapYear

Prototype

int32_t DrvRTC_IsLeapYear (void);

Description

According to current time , return this year is leap year or not.

Parameter

None.

Include

Driver/DrvRTC.h

Return Value

1: This year is a leap year.

0: This year is not a leap year.

DrvRTC_GetIntTick

Prototype

int32_t DrvRTC_GetIntTick (void);

Description

User can use DrvRTC_SetTickMode to set tick period and the function is used to

get current interrupt tick count after enable tick interrupt.

Parameter

None.

Include

Driver/DrvRTC.h

Return Value

Interrupt tick count number

DrvRTC_ResetIntTick

Prototype

void DrvRTC_ResetTick (void);

Description

The function is used to reset the tick count counting in interrupt.

Parameter

None.

Include

Driver/DrvRTC.h

Return Value

None

DrvRTC_EnableWakeUp

Prototype

int32t DrvRTC_EnableWakeUp (void);

Description

This function is used to enable wakeup CPU function.

Parameter

None

Include

Driver/DrvRTC.h

Return Value

E_SUCCESS: Success

DrvRTC_ DisableWakeUp

Prototype

int32_t DrvRTC_DisableWakeUp(void)

Description

This function is used to disable wakeup CPU function.

Parameter

None

Include

Driver/DrvRTC.h

Return Value

E_SUCCESS: Success

DrvRTC_EnableInt

Prototype

int32_t DrvRTC_EnableInt(
DRVRTC_INT_SOURCE str_IntSrc,
PFN_DRVRTC_CALLBACK pfncallback)

Description

This function is used to enable RTC specified interrupt and install callback function

Parameter

str_IntSrc: Interrupt Source: DRVRTC_TICK_INT / DRVRTC_ALARM_INT
pfncallback: Callback function pointer

Include

Driver/DrvRTC.h

Return Value

E_SUCCESS: Success
E_DRVRTC_ERR_ENOTTY: Wrong Parameter

DrvRTC_DisableInt

Prototype

int32_t DrvRTC_DisableInt(DRVRTC_INT_SOURCE i32IntSrc)

Description

This function is used to disable RTC specified interrupt and remove callback function.

Parameter

i32IntSrc: Interrupt Source:
DRVRTC_TICK_INT / DRVRTC_ALARM_INT /DRVRTC_ALL_INT

Include

Driver/DrvRTC.h

Return Value

None

DrvRTC_SetTickMode

Prototype

int32_t DrvRTC_SetTickMode(uint8_t ucMode)

Description

The function is used to set time tick period for periodic time tick Interrupt.

Parameter

ucMode[IN] the structure of DRVRTC_TICK. It is ued to set the RTC time tick period for Periodic Time Tick Interrupt request
It consists of
DRVRTC_TICK_1_SEC ~ DRVRTC_TICK_1_128_SEC

Include

Driver/DrvRTC.h

Return Value

E_SUCCESS: Success
E_DRVRTC_ERR_EIO: Access Enable failed
E_DRVRTC_ERR_ENOTTY: Parameter is wrong

DrvRTC_Close

Prototype

int32_t DrvRTC_Close (VOID);

Description

Disable NVIC channel of RTC and both tick and alarm interrupt..

Include

Driver/DrvRTC.h

Return Value

E_SUCCESS: Success

DrvRTC_GetVersion

Prototype

int32_t DrvRTC_GetVersion (void);

Description

Return the current version number of driver.

Include

Driver/DrvRTC.h

Return Value

Version number :

31:24	23:16	15:8	7:0
00000000	MAJOR_NUM	MINOR_NUM	BUILD_NUM

2. Revision History

Version	Date	Description
1.00.01	Mar. 2011	Preliminary RTC Driver User Guide of ISD9160