1. Project Information

Project Name: H_T_Sensor_RL78_Training

Output Date: 2025.03.06

2. Board Settings

Selected Board: RL78G23-64p_FastPrototypingBoard

Selected Device: R7F100GLGxFB (ROM size: 128KB, RAM size: 16KB, Pin count: 64)

3. Clock Settings

The table below shows the configured clock values:

Clock Source	Source Frequency
fIL	0.032768
BSP_CFG_HOCO_DIVIDE	0
BSP_CFG_MOCO_SOURCE	1
BSP_CFG_RTC_OUT_CLK_SOURCE	0
BSP_CFG_FSX_START_ON_STARTUP	1
BSP_CFG_FCLK_SOURCE	0
BSP_CFG_MOCO_DIVIDE	2
fSXR	0.032768
fSXP	0.032768
BSP_CFG_SUBSYSCLK_SOURCE	0
BSP_CFG_XT1_OSCMODE	0
BSP_CFG_HISYSCLK_OPERATION	1
BSP_CFG_SUBCLK_OPERATION	0
BSP_CFG_FMX_HZ	5000000
BSP_CFG_SUBCLK_SOURCE	1
BSP_CFG_MOSC_DIVIDE	0
fIMP	1
BSP_CFG_OCOCLK_SOURCE	0
BSP_CFG_X1_WAIT_TIME_SEL	7
BSP_CFG_HISYSCLK_SOURCE	0
BSP_CFG_FMX_START_ON_STARTUP	0
BSP_CFG_WAKEUP_MODE	0
fIHP	32
BSP_CFG_FIM_START_ON_STARTUP	1
BSP_CFG_ALLOW_FSUB_IN_STOPHALT	0
BSP_CFG_FIH_START_ON_STARTUP	1
fMAIN	32
fCLK	32
BSP_CFG_MAINCLK_SOURCE	0

4. system settings

4.1. On-chip debug setting

On-chip debug setting:

Setting name	Value
On-chip debug operation setting	COM Port
Emulator setting	E2 Lite
Pseudo-RRM/DMM function setting	Used
Start/Stop function setting	Unused
Monitoring point function setting	Unused
Trace function setting	Used
Use security ID	check
Security ID	0x00000000000000000000
Security ID authentication failure setting	Erase flash memory data

5. Software Component Settings

5.1. Config_IICA0

Component: IIC Communication (Master mode)

Use status: Used

Version: 1.6.0

Settings:

Setting name	Value
Clock mode setting	fCLK/2
Address	16
Operation mode setting	Standard
Digital filter on	Uncheck
Transfer clock (fSCL)	100000
Set tR and tF manually	Uncheck
tR	0
tF	0
Communication end interrupt priority (INTIICA0)	Level 3 (low)
Master transmission end	Check
Master reception end	Check
Master error	Check
Generated stop condition in master transmission/reception end callback function	Uncheck

5.2. Config_PORT

Component: Ports

Use status: Used

Version: 1.5.0

Common settings:

Setting name	Value
Port mode setting	Read Pmn register values

PORT0:

Setting name	Value
PORT0	Uncheck

PORT1:

Setting name	Value
PORT1	Uncheck

PORT2:

Setting name	Value
PORT2	Uncheck

PORT3:

Setting name	Value
PORT3	Uncheck

PORT4:

Setting name	Value
PORT4	Uncheck

PORT5:

Setting name	Value
PORT5	Check

P50:

Setting name	Value
Use status	Unused
Pull-up	Uncheck
Input buffer OFF	Uncheck
N-ch	Uncheck
Output 1	Uncheck
Output current value	Hi-Z

P51:

Setting name	Value
Use status	Unused
Pull-up	Uncheck
Output 1	Uncheck
Output current value	Hi-Z

P52:

Setting name	Value
Use status	Out
Pull-up	Uncheck
Output 1	Check

P53:

Setting name	Value
Use status	Out
Pull-up	Uncheck
Output 1	Check

P54:

Setting name	Value
Use status	Unused
Pull-up	Uncheck
Output 1	Check

P55:

Setting name	Value
Use status	Unused
Pull-up	Uncheck
TTL buffer	Uncheck
Input buffer OFF	Uncheck
N-ch	Uncheck
Output 1	Uncheck

PORT6:

Setting name	Value
PORT6	Uncheck

PORT7:

Setting name	Value
PORT7	Uncheck

PORT12:

Setting name	Value
PORT12	Uncheck

PORT13:

Setting name	Value
PORT13	Uncheck

PORT14:

Setting name	Value
PORT14	Uncheck

5.3. Config_TAU0_0

Component: Interval Timer

Use status: Used

Version: 1.5.0

Settings:

Setting name	Value
Operation clock	CK00
Clock source	fCLK/2^11
Interval value (16 bits)	3000
Interval unit	ms
Generates INTTM00 when counting is started	Uncheck
End of timer channel 0 count, generate an interrupt (INTTM00)	Check
Priority	Level 3 (low)

5.4. Config_ADC

Component: A/D Converter

Use status: Used

Version: 1.6.0

Settings:

Setting name	Value
Comparator Operation setting	Stop
Resolution setting	12 bits
VREF(+) setting	VDD
VREF(-) setting	VSS
Trigger mode setting	Software trigger no wait mode
Hardware trigger source	INTTM01
Operation mode setting	One-shot select mode

Setting name	Value
A/D channel selection	Temperature sensor output
Conversion time mode	Normal 2
Conversion time	5856/fCLK
INTAD generate condition	Generates an interrupt request (INTAD) when ADLL ≤ ADCRn ≤ ADUL
Upper bound (ADUL) value	255
Lower bound (ADLL) value	0
Use A/D interrupt (INTAD)	Checked
Priority	Level 3 (low)

5.5. r_comms_i2c

Version: 1.11

Setting name	Value
Parameter Checking	System Default
Number of I2C Shared Buses	1
Number of I2C communication Devices	1
I2C Driver Type for I2C Shared Bus0	IICA
Component name for the I2C Shared Bus0	Config_IICA0
Driver Type for I2C Shared Bus1	Not selected
Component name for the I2C Shared Bus1	Config_IIC00
Driver Type for I2C Shared Bus2	Not selected
Component name for the I2C Shared Bus2	Config_IIC00
Driver Type for I2C Shared Bus3	Not selected
Component name for the I2C Shared Bus3	Config_IIC00
Driver Type for I2C Shared Bus4	Not selected
Component name for the I2C bus4	Config_IIC00
I2C Shared Bus No. for I2C Communication Device0	I2C bus0
Slave address for I2C Communication Device0	0x54
Callback function for I2C Communication Device0	rm_hs400x_callback0
I2C Shared Bus No. for I2C Communication Device1	I2C bus0
Slave address for I2C Communication Device1	0x00
Callback function for I2C Communication Device1	comms_i2c_user_callback1
I2C Shared Bus No. for I2C Communication Device2	I2C bus0
Slave address for I2C Communication Device2	0x00
Callback function for I2C device2	comms_i2c_user_callback2
I2C Shared Bus No. for I2C Communication Device3	I2C bus0
Slave address for I2C Communication Device3	0x00
Callback function for I2C device3	comms_i2c_user_callback3
I2C Shared Bus No. for I2C Communication Device4	I2C bus0
Slave address for I2C Communication Device4	0x00
Callback function for I2C device4	comms_i2c_user_callback4

5.6. r_hs400x

Version: 1.02

Setting name	Value
Parameter Checking	System Default
Number of HS400x Sensors	1
Measurement Type for HS400x Sensors	No-Hold Measurement
Data types from HS400x Sensors	Humidity and Temperature
I2C Communication device No. for HS400x sensor device0	Comms0
Temperature Resolution for HS400X sensor device0	14-bit
Humidity Resolution for HS400X sensor device0	14-bit
Frequency of Periodic Measurement for HS400X sensor device0	1Hz
Callback function for HS400x sensor device0	hs400x_user_i2c_callback0
I2C communication device No. for HS400x sensor device1	Comms1
Temperature Resolution for HS400X sensor device1	14-bit
Humidity Resolution for HS400X sensor device1	14-bit
Frequency of Periodic Measurement for HS400X sensor device1	1Hz
Callback function for HS400x sensor device1	hs400x_user_i2c_callback1

5.7. r_rfd_rl78_t01_dataflash

Version: 1.20

There are no configurable items for r_rfd_rl78_t01_dataflash.

5.8. r_bsp

Version: 1.70

Setting name	Value
Start up select	Enable (use BSP startup)
Control of illicit memory access detection(IAWEN)	Disable
Protected area in the RAM(GRAM1-0)	Disabled
Protection of the port control registers(GPORT)	Disabled
Protection of the interrupt control registers(GINT)	Disabled
Protection of the clock, voltage detector, and RAM parity error detection control registers(GCSC)	Disabled
Data flash memory area/extra area access control(DFLEN)	Enables
Initialization of peripheral functions by Code Generator/Smart Configurator	Enable
API functions disable(R_BSP_StartClock, R_BSP_StopClock)	Disable
API functions disable(R_BSP_GetFclkFreqHz)	Enable
API functions disable(R_BSP_SetClockSource)	Disable
API functions disable(R_BSP_ChangeClockSetting)	Disable
API functions disable(R_BSP_SoftwareDelay)	Enable
Parameter check enable	Enable

Setting name	Value
Enable user warm start callback (PRE)	Unused
User warm start callback function name (PRE)	my_sw_warmstart_prec_function
Enable user warm start callback (POST)	Unused
User warm start callback function name (POST)	my_sw_warmstart_postc_function
Watchdog Timer refresh enable	Unused
Watchdog Timer initialize user function name	my_sw_wdt_refresh_init_function
Watchdog Timer setting user function name	my_sw_wdt_refresh_setting_function

5.9. r_rfd_rl78_t01_common

Version: 1.20

There are no configurable items for r_rfd_rl78_t01_common.

5.10. Config_UARTA1

Component: UART Communication

Use status: Used

Version: 1.7.0

Settings:

Setting name	Value
Operation clock	fSEL/4
fSEL source	fSEL clock select fIMP
ELCL clock	32000
CLKA1 pin output setting	Disable
Data length setting	8 bits
Transfer direction setting	LSB
Parity setting	None
Stop bit length setting	1 bit
Transfer data level setting	Non-reverse
Transmit mode setting	Continuous transmit by polling
Transfer rate setting	9600
Transmit end interrupt priority (INTUT1)	Level 3 (low)
Transmission end	Check

6. Board Pin Information

The table below lists default board pins:

Pin Number	Board Functions
5	TOOL0
6	RESET
7	XT2

Pin Number	Board Functions
8	XT1
9	INTP0
35	P52
36	P53
44	TOOLTxD
45	TOOLRxD
55	AVREFM
56	AVREFP

7. Interrupt Settings

The table below shows used interrupts' information:

Vector Number	Interrupt	Priority	Bank specify
14	INTTM00	Level 3 (low)	None
19	INTIICA0	Level 3 (low)	None
24	INTAD	Level 3 (low)	None

8. Pin Settings

8.1. Pin Number

Pin Number	Pin Name	Function	Direction	Remarks	Symbolic Name	Comments
1	P120/ANI19/IVCMP1/EI120	Not assigned	None			J6-32
2	P43/CLKA1	Not assigned	None			[Arduino-2]
3	P42/TxDA1/TI04/TO04	TxDA1	O			[Arduino-~3]
4	P41/RxDA1/TI07/TO07	Not assigned	None			[Arduino-~5]
5	P40/TOOL0	TOOL0	IO			[TOOL0]
6	RESET	Not assigned	None		-	[RESET][Arduino-RES]
7	P124/XT2/EXCLKS	XT2	None			[XT2]
8	P123/XT1	XT1	None			[XT1]
9	P137/EI137/INTP0	Not assigned	None			J6-29[SW1]
10	P122/X2/EXCLK/EI122	Not assigned	None			J6-28
11	P121/X1/VBAT/EI121	Not assigned	None			J6-27
12	REGC	Not assigned	None		-	
13	VSS	VSS	-	Read only	-	J6-15
14	EVSS0	EVSS0	-	Read only	-	
15	VDD	VDD	-	Read only	-	J6-16
16	EVDD0	EVDD0	-	Read only	-	J6-17
17	P60/EO60/CCD04/SCLA0	SCLA0	IO			[Arduino-SCL/19]

Pin Number	Pin Name	Function	Direction	Remarks	Symbolic Name	Comments
18	P61/EO61/CCD05/SDAA0	SDAA0	IO			[Arduino-SDA/18]
19	P62/CCD06/SCLA1	Not assigned	None			[GROVE-SCL]
20	P63/CCD07/SDAA1	Not assigned	None			[GROVE-SDA]
21	P31/TS01/EI31/TI03/TO03/INTP4/PCLBUZ0	Not assigned	None			[Arduino-~6]
22	P77/TS09/KR7/INTP11/TxD2	Not assigned	None			[Arduino-4]
23	P76/TS08/KR6/INTP10/RxD2	Not assigned	None			[Arduino-7]
24	P75/TS07/KR5/INTP9/SCK01/SCL01	Not assigned	None			J6-26
25	P74/TS06/KR4/INTP8/SI01/SDA01	Not assigned	None			J6-25
26	P73/TS05/KR3/SO01	Not assigned	None			[Arduino-8]
27	P72/TS04/KR2/SO21/TxDA0	Not assigned	None			J6-24
28	P71/TS03/KR1/SI21/SDA21/RxDA0	Not assigned	None			J6-23
29	P70/TS02/RIN0/KR0/SCK21/SCL21	Not assigned	None			J6-22
30	P06/TS11/TI06/TO06/CLKA0	Not assigned	None			[Arduino-~9]
31	P05/TS10/TI05/TO05	Not assigned	None			[Arduino-~10]
32	P30/VCOUT0/TSCAP/EI30/INTP3/RTC1HZ/SCK11/SCL11	Not assigned	None			[Arduino-SCK/13]
33	P50/TS00/EI50/EO50/CCD03/INTP1/SI11/SDA11	Not assigned	None			[Arduino-MISO/12]
34	P51/EI51/EO51/CCD02/INTP2/SO11	Not assigned	None			[Arduino-MOSI/~11]
35	P52/INTP10	P52	O		LED2	J6-18[LED2]
36	P53/INTP11	P53	O		LED1	J6-19[LED1]
37	P54	Not assigned	None			J6-20
38	P55/PCLBUZ1/SCK00	Not assigned	None			J6-21
39	P17/EO17/CCD01/TI02/TO02/SO00/TxD0	Not assigned	None			J7-34
40	P16/EO16/CCD00/TI01/TO01/INTP5/SI00/RxD0	Not assigned	None			J7-35
41	P15/EO15/SCK20/SCL20/TI02/TO02	Not assigned	None			J7-36
42	P14/VCOUT1/EO14/RxD2/SI20/SDA20/SCLA0/TI03/TO03	Not assigned	None			J7-37
43	P13/IVREF1/EO13/TxD2/SO20/SDAA0/TI04/TO04	Not assigned	None			J7-38
44	P12/EI12/EO12/SO00/TxD0/TOOLTxD/INTP5/TI05/TO05	TOOLTxD	O			J7-39[TOOLTxD]
45	P11/EI11/EO11/SI00/RxD0/TOOLRxD/SDA00/TI06/TO06	TOOLRxD	I			J7-40[TOOLRxD]
46	P10/EI10/EO10/SCK00/SCL00/TI07/TO07	Not assigned	None			J7-41

Pin Number	Pin Name	Function	Direction	Remarks	Symbolic Name	Comments
47	P146	Not assigned	None			J7-42
48	P147/ANI18/IVCMP0/EI147	Not assigned	None			J7-43
49	P27/ANI7	Not assigned	None			[Arduino-A5]
50	P26/ANI6	Not assigned	None			[Arduino-A4]
51	P25/ANI5	Not assigned	None			[Arduino-A3]
52	P24/ANI4	Not assigned	None			[Arduino-A2]
53	P23/ANI3/ANO1/IVREF0/EI23	Not assigned	None			[Arduino-A1]
54	P22/ANI2/ANO0/EI22	Not assigned	None			[Arduino-A0]
55	P21/ANI1/AVREFM/EI21	Not assigned	None			J7-44[AVREFM]
56	P20/ANI0/AVREFP/EI20	Not assigned	None			[AVREFP][Arduino-AREF]
57	P130	Not assigned	None			J7-45
58	P04/SCK10/SCL10	Not assigned	None			J6-33
59	P03/ANI16/SI10/RxD1/SDA10	Not assigned	None			[Arduino-RX/0]
60	P02/ANI17/SO10/TxD1	Not assigned	None			[Arduino-TX/1]
61	P01/EI01/EO01/TO00	Not assigned	None			J7-46
62	P00/EI00/TI00	Not assigned	None			J7-47
63	P141/PCLBUZ1/INTP7	Not assigned	None			J7-48
64	P140/PCLBUZ0/INTP6	Not assigned	None			J7-49

The picture below shows the MCU/MPU package: