

# MPC5606S-DEMO-

# LM75B + HIH-5030 + PCA8565 + GUI

Simple weather station demo using 2 external sensors and external real time clock/calendar

*by David Tosenovjan*

## 1. Equipment

*Test HW:* MPC5606S-DEMO-V2 + LM75BD + HIH-5030 + PCA8565 sensors

*MCU:* PPC5606SEF 0M25V

*Terminal:* none

*Fsys:* 64MHz

*Debugger:* Lauterbach Trace32

*Target:* internal\_FLASH



## 2. Detailed description

Demo application performs I2C communication with externally connected temperature sensor LM75B and with externally connected I2C external real time clock/calendar PCA8565. It also measures analog voltage from externally connected humidity sensor HIH-5030. Obtained values are processed and displayed on MPC5606S-DEMO-V2 board's TFT panel. Date and time may be set up by demo board's buttons (SW2-SW6). Basically demo application builds base for simple weather station.

Application uses standard Graphics Libraries for MPC5606S for simple graphic output that is managed in mc\_base.c module only.

I2C communication is managed with using of own two layer driver where low-level driver consisting of I2C\_0.c and I2C\_0.h - these can be used for any device connected to I2C\_0 module.

Middle-level driver layer consist of I2C\_LM75B.c and I2C\_LM75B.h and it is specific to LM75B device.

## 3. Date and Time Setting

- 1) ENTER - enter to clock/date setting mode
- 2) LEFT/RIGTH - choose settable segment with blinking cursor (20yy -> mm -> dd -> hh -> mm -> ss -> 20yy)
- 3) UP/DOWN - set wanted clock/date values
- 4) ENTER - exit clock/date setting mode

## 4. Scheme of connection and BOM - temperature sensor

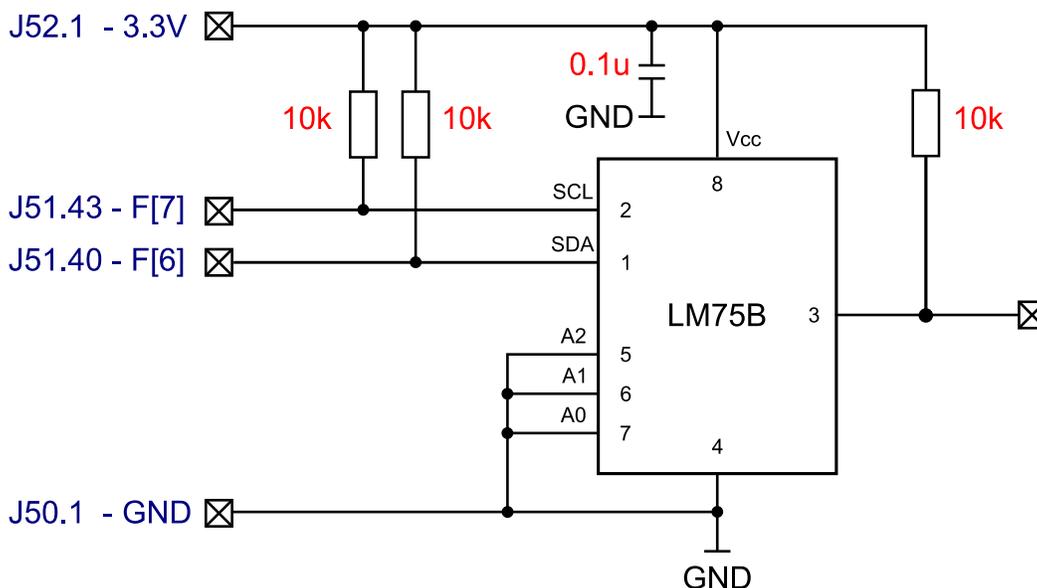


Table 1. Bill of material - temperature sensor

Item	Quantity	Detail	Vendor
LM75B	1x	Digital temperature sensor	NXP
OM13491	1x	Surface Mount to DIP Evaluation Board OM13491	NXP
Resistor	3x	10kOhm	-
Capacitor	1x	0.1uF	-

## 5. Scheme of connection and BOM - humidity sensor

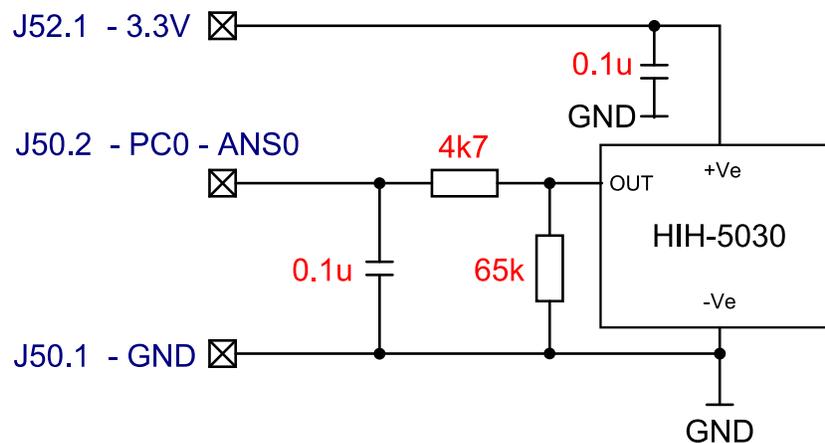
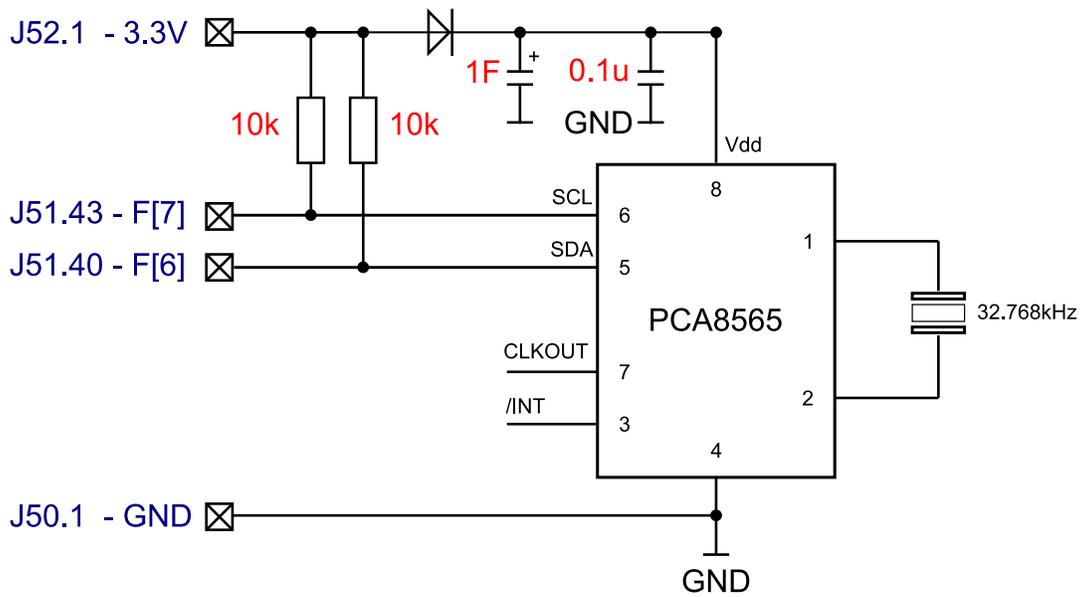


Table 2. Bill of material - temperature sensor

Item	Quantity	Detail	Vendor
HIH-5030	1x	Low Voltage Humidity Sensor	Honeywell
Resistor	1x	65kOhm	-
Resistor	1x	4.7kOhm	-
Capacitor	2x	0.1uF	-

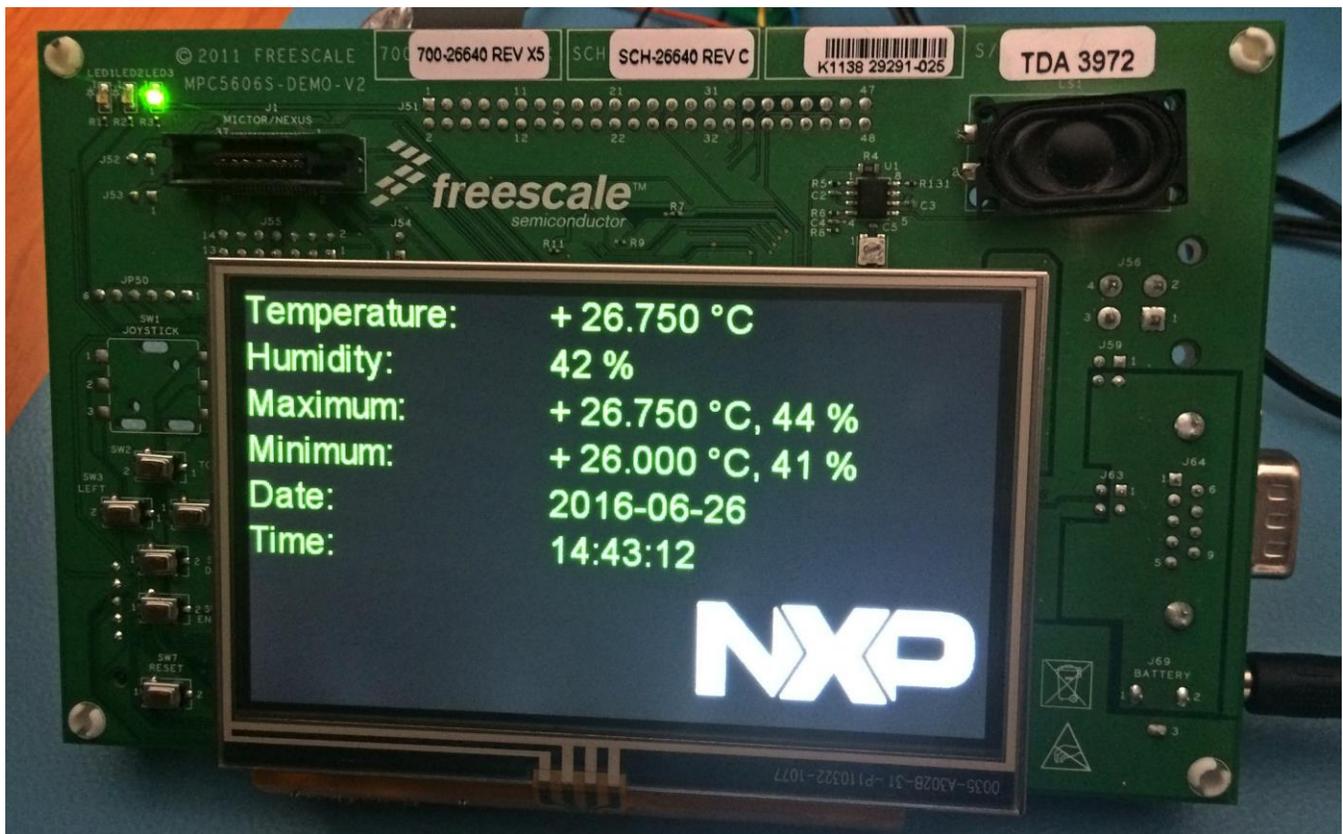
## 6. Scheme of connection and BOM - Real Time Clock



**Table 3. Bill of material - Real Time Clock/Calendar**

Item	Quantity	Detail	Vendor
PCA8565	1x	Real Time Clock/Calendar	NXP
OM13491	1x	Surface Mount to DIP Evaluation Board OM13491	NXP
Resistor	2x	10kOhm	-
Capacitor	1x	0.1uF	-
Capacitor	1x	1F polarized	-
Diode	1x	general purpose diode	-

## 7. Photograph



## 8. References

- MPC5xxx I2C communication driver  
<https://community.freescale.com/docs/DOC-330972>

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