



TouchCore Family

Application Note #040

(AN040-V1.1)

NA

[TouchCore2.0] Register Map for Touch Screen

V1.0

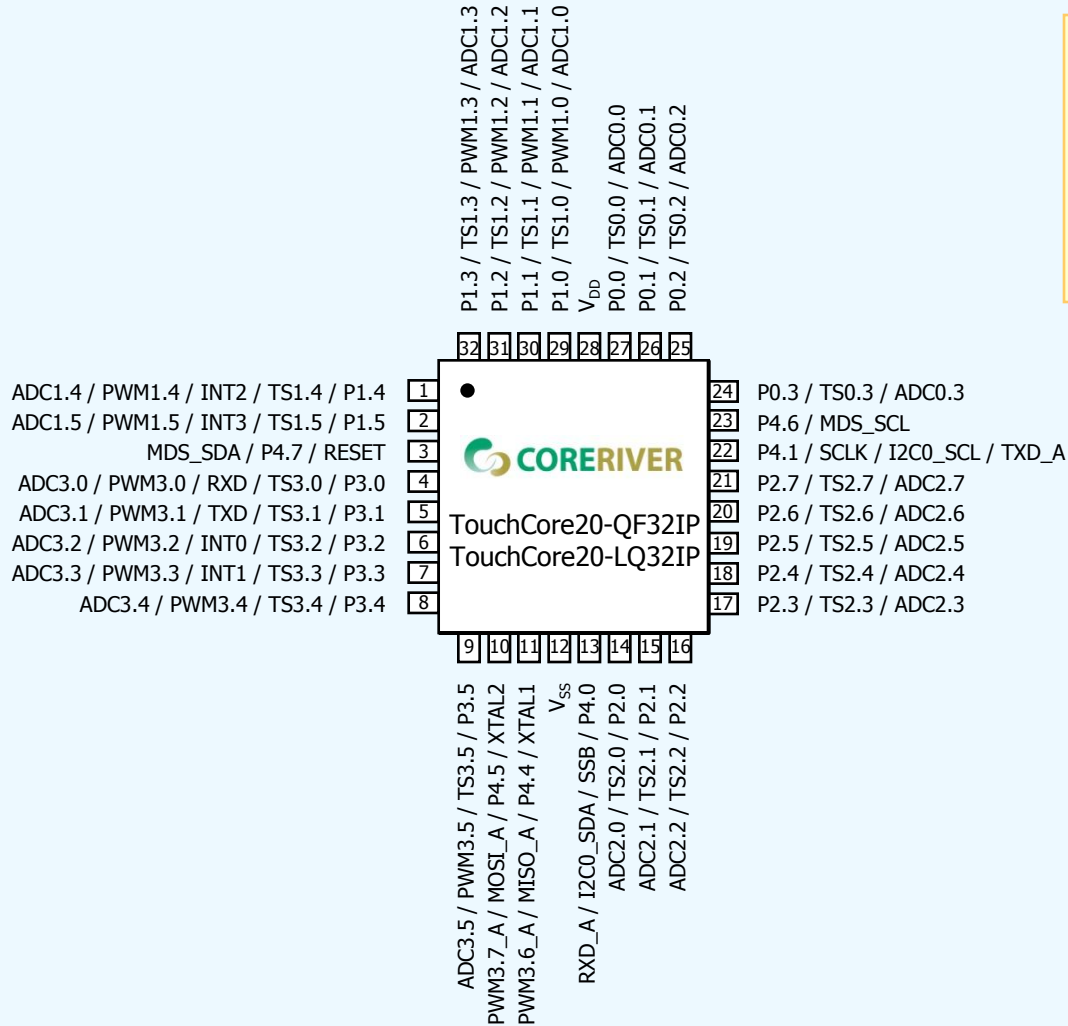
December 2008

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1. Pin Configurations



[32-QFN]
[32-LQFP]

[ISP/MDS Pin Configuration 1]

-  VCC
-  GND
-  MDS_SCL (P4.6)
-  MDS_SDA (P4.7/RESET)
-  I2C0_SCL/TXD_A (P4.1)
-  I2C0_SDA/RXD_A (P4.0)

2. I2C Protocol (1/3)

- ◆ 7bit Address mode
- ◆ Slave address : 0x8E

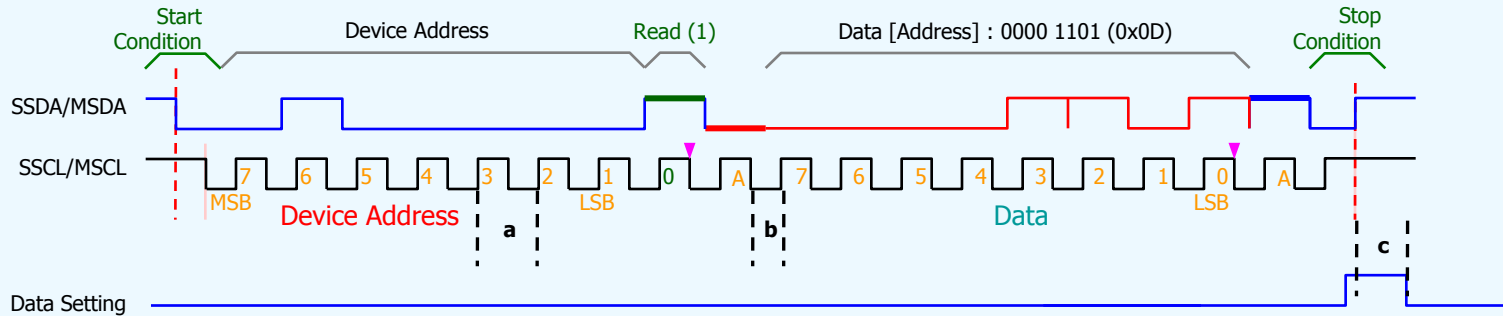
- ◆ Write mode (Address, Data)
 - ✓ (Start) – (Slave address + Write(0x8E)) – (0 + data(7bit)) - stop
 - If MSB of data byte is 0, write the data
 - ✓ (Start) – (Slave address + Write(0x8E)) – (1 + address(7bit)) - stop
 - If MSB of data byte is 1, write the address
 - Address applied MSB 1. (Ex> 0xc0(11000000))

- ◆ Read mode (Data)
 - ✓ (Start) – (Slave address + read(0x8F)) – (data) – (stop)
 - Reads the data in address

- ◆ For Example
 - ✓ First, Setting the address. (0xC0)
 - ✓ Write the data (0x80)
 - ✓ Then, write 0x80 in 0xC0.

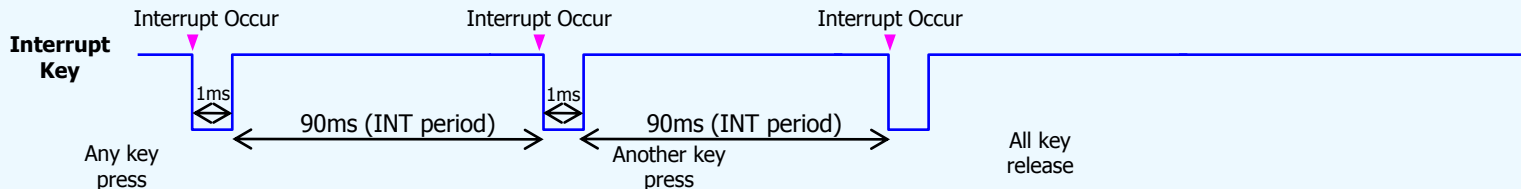
 - ✓ Setting the address. (0xC1)
 - ✓ Read the data.
 - ✓ Then, reads the data in 0xC1

2. I2C Protocol (2/3)



	Min.	Typ.	Max.
a (I2C Speed)	-	500kHz	800kHz
b (Interval of between byte and byte)	40us	45us	-
c (Data settling time when data is setting)	-	Normal register : 30us Delta, Threshold : 11.7ms	-

✓ Interrupt key scheme



2. I2C Protocol (3/3)

- ◆ 10bit Address mode
- ◆ Slave(Device) address : 0x8E
- ◆ Memory address :
 - ✓ Delta Value0 : 0x10 ,Delta Value1 : 0x11
 - Touch Mode (Single-Touch or Multi-Touch) : 0x52
- ◆ Write mode (Address, Data)
 - ✓ (Start) – (Slave address + Memory address + Write(0x8E)) – data(8bit) – stop
- ◆ Read mode (Data)
 - ✓ (Start) – (Slave address + Memory address+ Restart + read(0x8F)) – data(8bit) – stop

3. Register Map (1/5)

Address	Register Name	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	Direction
0x10	Delta Value0	0	0	0	0	0	0	0	0	I/O
0x11	Delta Value1	0	0	0	0	0	0	0	0	I/O
0x12	Delta Value2	0	0	0	0	0	0	0	0	I/O
0x13	Delta Value3	0	0	0	0	0	0	0	0	I/O
0x14	Delta Value4	0	0	0	0	0	0	0	0	I/O
0x15	Delta Value5	0	0	0	0	0	0	0	0	I/O
0x16	Delta Value6	0	0	0	0	0	0	0	0	I/O
0x17	Delta Value7	0	0	0	0	0	0	0	0	I/O
0x18	Delta Value8	0	0	0	0	0	0	0	0	I/O
0x19	Delta Value9	0	0	0	0	0	0	0	0	I/O
0x1A	Delta Value10	0	0	0	0	0	0	0	0	I/O
0x1B	Delta Value11	0	0	0	0	0	0	0	0	I/O
0x1C	Delta Value12	0	0	0	0	0	0	0	0	I/O
0x1D	Delta Value13	0	0	0	0	0	0	0	0	I/O
0x1E	Delta Value14	0	0	0	0	0	0	0	0	I/O
0x1F	Delta Value15	0	0	0	0	0	0	0	0	I/O
0x20	Delta Value16	0	0	0	0	0	0	0	0	I/O
0x21	Delta Value17	0	0	0	0	0	0	0	0	I/O
0x22	Delta Value18	0	0	0	0	0	0	0	0	I/O

3. Register Map (2/5)

Address	Register Name	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	Direction
0x23	Delta Value19	0	0	0	0	0	0	0	0	I/O
0x24	Delta Value20	0	0	0	0	0	0	0	0	I/O
0x25	Delta Value21	0	0	0	0	0	0	0	0	I/O
0x26	Delta Value22	0	0	0	0	0	0	0	0	I/O
0x27	Delta Value23	0	0	0	0	0	0	0	0	I/O
0x28	Delta Value24	0	0	0	0	0	0	0	0	I/O
0x29	Delta Value25	0	0	0	0	0	0	0	0	I/O
0x2A	Delta Value26	0	0	0	0	0	0	0	0	I/O
0x2B	Delta Value27	0	0	0	0	0	0	0	0	I/O
0x2C	Delta Value28	0	0	0	0	0	0	0	0	I/O
0x2D	Delta Value29	0	0	0	0	0	0	0	0	I/O
0x2E	Delta Value30	0	0	0	0	0	0	0	0	I/O
0x2F	Delta Value31	0	0	0	0	0	0	0	0	I/O
0x30	Sensitivity0	0	0	0	0	0	0	0	0	I/O
0x31	Sensitivity1	0	0	0	0	0	0	0	0	I/O
0x32	Sensitivity2	0	0	0	0	0	0	0	0	I/O
0x33	Sensitivity3	0	0	0	0	0	0	0	0	I/O
0x34	Sensitivity4	0	0	0	0	0	0	0	0	I/O
0x35	Sensitivity5	0	0	0	0	0	0	0	0	I/O

3. Register Map (3/5)

Address	Register Name	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	Direction
0x36	Sensitivity6	0	0	0	0	0	0	0	0	I/O
0x37	Sensitivity7	0	0	0	0	0	0	0	0	I/O
0x38	Sensitivity8	0	0	0	0	0	0	0	0	I/O
0x39	Sensitivity9	0	0	0	0	0	0	0	0	I/O
0x3A	Sensitivity10	0	0	0	0	0	0	0	0	I/O
0x3B	Sensitivity11	0	0	0	0	0	0	0	0	I/O
0x3C	Sensitivity12	0	0	0	0	0	0	0	0	I/O
0x3D	Sensitivity13	0	0	0	0	0	0	0	0	I/O
0x3E	Sensitivity14	0	0	0	0	0	0	0	0	I/O
0x3F	Sensitivity15	0	0	0	0	0	0	0	0	I/O
0x40	Sensitivity16	0	0	0	0	0	0	0	0	I/O
0x41	Sensitivity17	0	0	0	0	0	0	0	0	I/O
0x42	Sensitivity18	0	0	0	0	0	0	0	0	I/O
0x43	Sensitivity19	0	0	0	0	0	0	0	0	I/O
0x44	Sensitivity20	0	0	0	0	0	0	0	0	I/O
0x45	Sensitivity21	0	0	0	0	0	0	0	0	I/O
0x46	Sensitivity22	0	0	0	0	0	0	0	0	I/O
0x47	Sensitivity23	0	0	0	0	0	0	0	0	I/O
0x48	Sensitivity24	0	0	0	0	0	0	0	0	I/O

3. Register Map (4/5)

Address	Register Name	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	Direction
0x49	Sensitivity25	0	0	0	0	0	0	0	0	I/O
0x4A	Sensitivity26	0	0	0	0	0	0	0	0	I/O
0x4B	Sensitivity27	0	0	0	0	0	0	0	0	I/O
0x4C	Sensitivity28	0	0	0	0	0	0	0	0	I/O
0x4D	Sensitivity29	0	0	0	0	0	0	0	0	I/O
0x4E	Sensitivity30	0	0	0	0	0	0	0	0	I/O
0x4F	Sensitivity31	0	0	0	0	0	0	0	0	I/O
0x50	X-Axis Sensitivity Control Up/Down	0	0	0	0	0	0	0	0	Input
0x51	Y-Axis Sensitivity Control Up/Down	0	0	0	0	0	0	0	0	Input
0x52	Touch Mode (Single-Touch or Multi-Touch)	0	0	0	0	0	0	0	0	Input
0x53	Single-Touch X Position High	0	0	0	0	0	0	0	0	Output
	Single-Touch X Position Low	0	0	0	0	0	0	0	0	Output
	Single-Touch Y Position High	0	0	0	0	0	0	0	0	Output
	Single-Touch Y Position Low	0	0	0	0	0	0	0	0	Output
0x54	Multi-Touch X1 Position High	0	0	0	0	0	0	0	0	Output
	Multi-Touch X1 Position Low	0	0	0	0	0	0	0	0	Output
	Multi-Touch Y1 Position High	0	0	0	0	0	0	0	0	Output
	Multi-Touch Y1 Position Low	0	0	0	0	0	0	0	0	Output
	Multi-Touch X2 Position High	0	0	0	0	0	0	0	0	Output

3. Register Map (5/5)

Address	Register Name	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	Direction
	Multi-Touch X2 Position Low	0	0	0	0	0	0	0	0	Output
	Multi-Touch Y2 Position High	0	0	0	0	0	0	0	0	Output
	Multi-Touch Y2 Position Low	0	0	0	0	0	0	0	0	Output
0x55	Version Info High	0	0	0	0	0	0	0	0	Output
	Version Info Low	0	0	0	0	0	0	0	0	Output