# EXC7200 Controller IC

## Content

# 1. INTRODUCTION

The EXC7200 is a MCU based integrated system controller chip for capacitive touchscreen. Working with EETI's EX5404 for Projected Capacitive Touchscreen (PCAP/PCT) touch technology; it is specified for 3.3V operation over the industrial temperature range (-40˚C to +80˚C). EXC7200 provides 48 pins LQFP package. It works with EETI's extension slave ASIC for Projected capacitive touchscreen. This chip design is scableable for different size, numbers of sensing channels of projected capacitive sensors. This main chip can work with multiple slave ASICs to support bigger size of sensor.

EETI's vision is to be effective responses to the changing demands and driving market leadership. Through a combination of reliable product, cost efficiency and enhanced quality of service, we establish long-term strategic partnership with our customer and maximize the potential of profitable growth together.
Delivering a most satisfying product and service to customers is an essential business value that EETI holds. Every day, thousands of people benefits from the convenience brought by communication technology and HMI / touch technology from our video and touch panel divisions.

# 2. DESCRIPTION

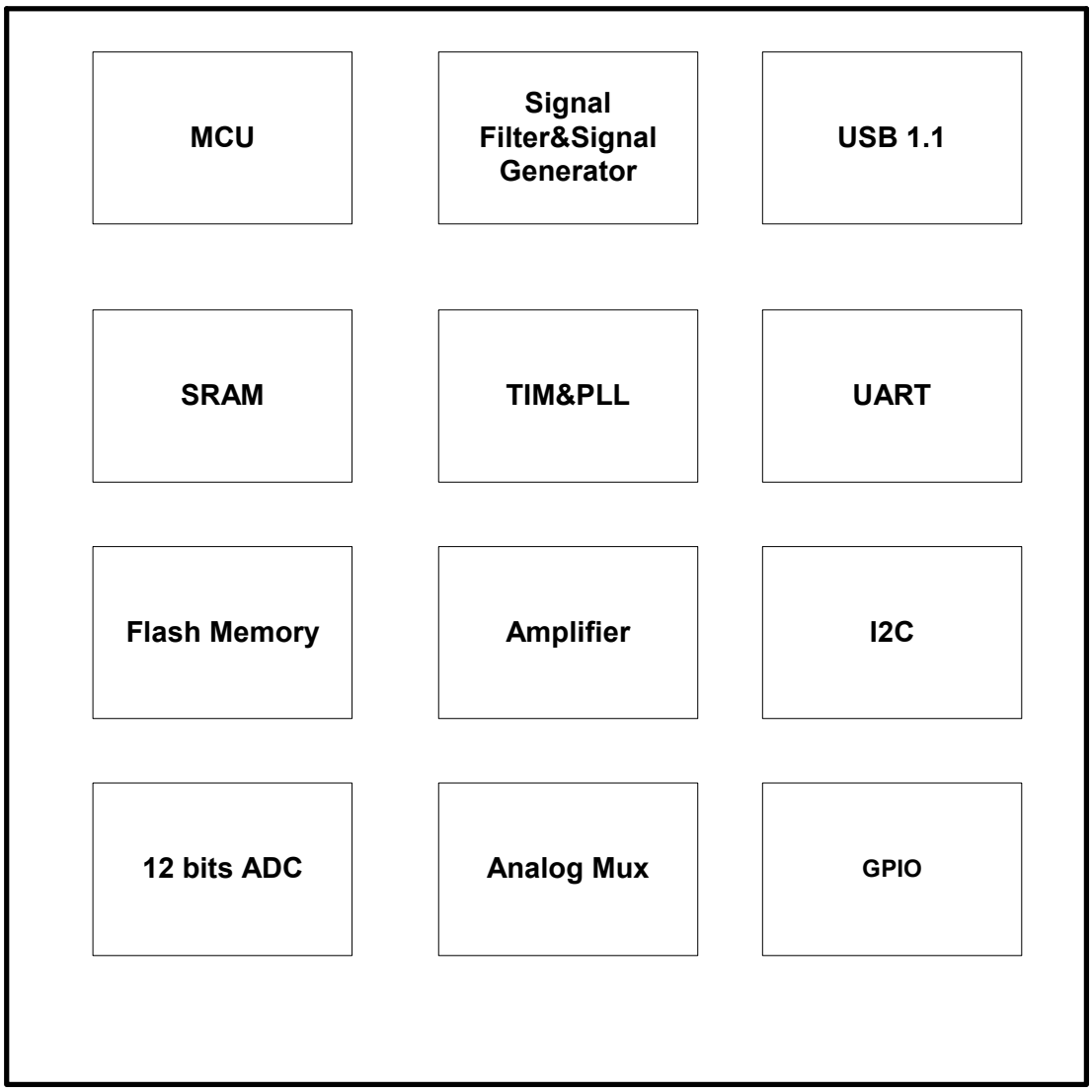
## 2.1 HARDWARE OVERVIEW

- Package : LQFP48
- Operating Temperature: -40 to 80℃
- Storage Temperature: -65 to 150 ℃
- Relative Humidity: 95% at 60 ℃
- Supplied Voltage: Regulated 3.3 VDC, 50 mVpp maximum ripple
- Power consumption: typical 50 mA
- Oscillator frequency: 12MHz
- Interface to Host: USB: 1.1 Full Speed
- Interface to slave ASIC: I2C
- Electrostatic discharge: 2000V(HBM), 500V(CDM)

## 2.2 FEATURES

- Support OS: Windows 7
- Support points: Dual points.
- Response time: max. 35 ms
- Resolution: 2048x2048
- Max. report rate: 75 points/ sec(Dual points on Windows 7)

# 3. BLOCK DIAGARAM



# 4. ELECTRICAL CHARACTERISTIC

Voltage characteristics

| symbol | ratings | min | max | unit |
|---|---|---|---|---|
| VDD-VSS | External 3.3V supply voltage | -0.3 | 4 | V |
| \|△VDD\| | Variations between different power pins | 50 | 50 | mV |
| \|VSSx-VSS\| | Variations between all the different ground pins | 50 | 50 | mV |

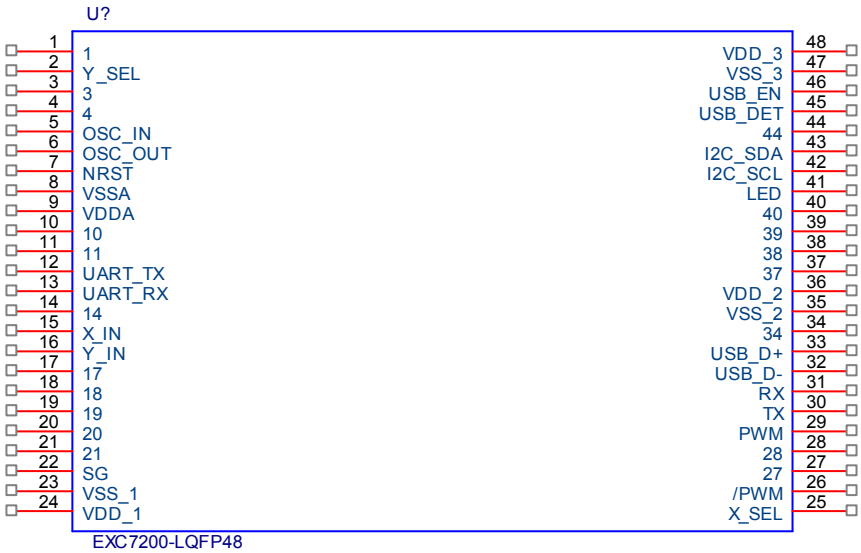
ESD absolute maximum ratings

| symbol | Ratings | Conditions | Class | Maximum value | unit |
|---|---|---|---|---|---|
| Vesd(HBM) | Electrostatic discharge voltage(human body model) | TA = +25 OC conforming to JESD22-A114 | 2 | 2000 | V |
| Vesd(CDM) | Electrostatic discharge voltage(charge device model) | TA = +25 OC conforming to JESD22-A114 | II | 500 | V |

General operating conditions

| symbol | parameter | min | max | unit |
|---|---|---|---|---|
| VDD | Standard operating voltage | 3 | 3.6 | V |
| TA | Ambient temperature range | -40 | 105 | ℃ |

# 5. PIN DESCRIPTION

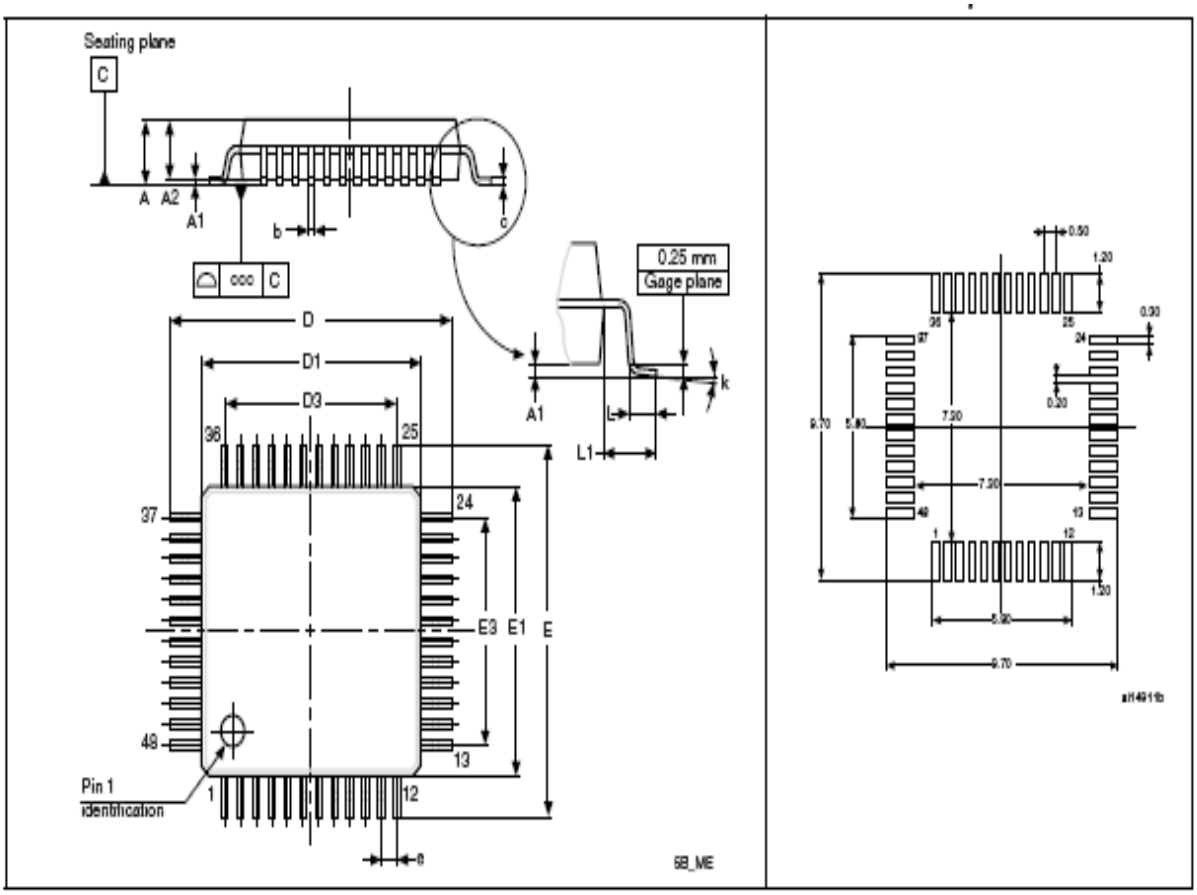



Pin definitions

| PINS | Pin Name | Pin Description |
|---|---|---|
| 1 | P1 | GPIO |
| 2 | Y_SEL | GPIO/Y axis Selection |
| 3 | P3 | GPIO |
| 4 | P4 | |
| 5 | OSC_IN | Oscillation/Crystal Input |
| 6 | OSC_OUT | Oscillator/Crystal Output |
| 7 | NRST | External reset |
| 8 | VSSA | Analog Ground |
| 9 | VDDA | Analog Power |
| 10 | P10 | GPIO |
| 11 | P11 | GPIO |
| 12 | UART_TX | Uart Tx Pin |
| 13 | UART_RX | Uart Rx Pin |
| 14 | P14 | GPIO |
| 15 | X_IN | X Signal Input |
| 16 | Y_IN | Y Signal Input |

| | | |
|---|---|---|
| 17 | P17 | GPIO |
| 18 | P18 | GPIO |
| 19 | P19 | GPIO |
| 20 | P20 | GPIO |
| 21 | P21 | GPIO |
| 22 | SG | Signal generator output |
| 23 | VSS | Digital Ground |
| 24 | VDD | Digital Power |
| 25 | X_SEL | X axis Selection |
| 26 | /PWM | Inverted PWM signal |
| 27 | P27 | GPIO |
| 28 | P28 | GPIO |
| 29 | PWM | PWM Signal Output |
| 30 | GPIO/TX | GPIO/SCI TX |
| 31 | GPIO/RX | GPIO/SCI RX |
| 32 | USB_D- | USB D- |
| 33 | USB_D+ | USB D+ |
| 34 | P34 | GPIO |
| 35 | VSS | Digital Power |
| 36 | VDD | Digital Ground |
| 37 | P37 | GPIO |
| 38 | P38 | GPIO |
| 39 | P39 | GPIO |
| 40 | P40 | GPIO |
| 41 | P41/LED | GPIO/LED drive |
| 42 | I2C_SCL | I2C Clock |
| 43 | I2C_SDA | I2C Data |
| 44 | P44 | GPIO |
| 45 | USB_DET | USB Detection |
| 46 | USB_EN | USB Enable |
| 47 | VSS | Digital Ground |
| 48 | VDD | Digital Power |

# 6. PACKAGE CHARACTERISTICS




1. Drawing is not to scale.
2. Dimensions are in millimeters.

| Symbol | millimeters | | | inches[1] | | |
|---|---|---|---|---|---|---|
| | Typ | Min | Max | Typ | Min | Max |
| A | | | 1.600 | | | 0.0630 |
| A1 | | 0.050 | 0.150 | | 0.0020 | 0.0059 |
| A2 | 1.400 | 1.350 | 1.450 | 0.0551 | 0.0531 | 0.0571 |
| b | 0.220 | 0.170 | 0.270 | 0.0087 | 0.0067 | 0.0106 |
| c | | 0.090 | 0.200 | | 0.0035 | 0.0079 |
| D | 9.000 | 8.800 | 9.200 | 0.3543 | 0.3465 | 0.3622 |
| D1 | 7.000 | 6.800 | 7.200 | 0.2756 | 0.2677 | 0.2835 |
| D3 | 5.500 | | | 0.2165 | | |
| E | 9.000 | 8.800 | 9.200 | 0.3543 | 0.3465 | 0.3622 |
| E1 | 7.000 | 6.800 | 7.200 | 0.2756 | 0.2677 | 0.2835 |
| E3 | 5.500 | | | 0.2165 | | |
| e | 0.500 | | | 0.0197 | | |
| L | 0.600 | 0.450 | 0.750 | 0.0236 | 0.0177 | 0.0295 |
| L1 | 1.000 | | | 0.0394 | | |
| k | 3.5° | 0° | 7° | 3.5° | 0° | 7° |
| ccc | | 0.080 | | | 0.0031 | |

1. Values in inches are converted from mm and rounded to 4 decimal digits.

# 7. Reference schematic: