IC1114-F48LQ

USB Port SM Card Reader Controller

1. FEATURES

- High speed 8-bit micro-controller with 4 system clock per machine cycle
- Instruction-set compatible with MCS-51
- Embedded 32K-byte program flash ROM for product quick delivery. In System Programming, ISP, is supported through USB port during normal operation, or through serial port in test mode.
- Built in fixed address 256 bytes data RAM.
- Built in floating address 4608 bytes data RAM
- Extra 1K bytes CPU data RAM space available by disabling central control block function.
- System power saving mode ready, idle & power down modes.
- Three programmable 16-bit timer/counter and watchdog timer.

- Compliant with USB Specification Rev.1.1, supports full speed (12Mbits/sec), one device address and four endpoints. (Including control, interrupt, bulk in and bulk out endpoints)
- Master/Slave IIC and UART/RS-232 interface for external device communication.
- Smart Media Card/NAND type flash chip interface complies with Smart Media Specification Rev.1.1 and Smart Media Identify Number Specification Version 1.1
- 3.0~3.6V supply.
- 48pin LQFP packages is available.

2.   GENERAL DESCRIPTION

IC1114 includes a turbo 8051 family CPU core, 32K-byte internal program Flash-ROM, 4608-byte SRAM, USB function block, SM flash card interface, NAND type flash chip interface, 13 I/O ports and IIC master & slave blocks in 48 pin LQFP package.

The IC1114 embedded full speed USB port to communicate with host. IC1114 provides UART port and IIC port for any extended function usage. For those early development or code always changing environment, IC1114 provides a flexible solution with embedded 32K bytes program Flash-ROM. User can update her/his ROM code by the built in USB-ISP function. With USB-ISP function, user doesn't need to power down the chip in advance, just hot plug into USB port then firmware code get updated by ICSI provided AP. User can also update firmware code through IIC under test/programming mode.

IC1114 can support CPU data memory space up to 5.5K bytes by turning off central control block function. For those more I/O ports required applications, IC1114 can provide up to 29 general I/O pins.
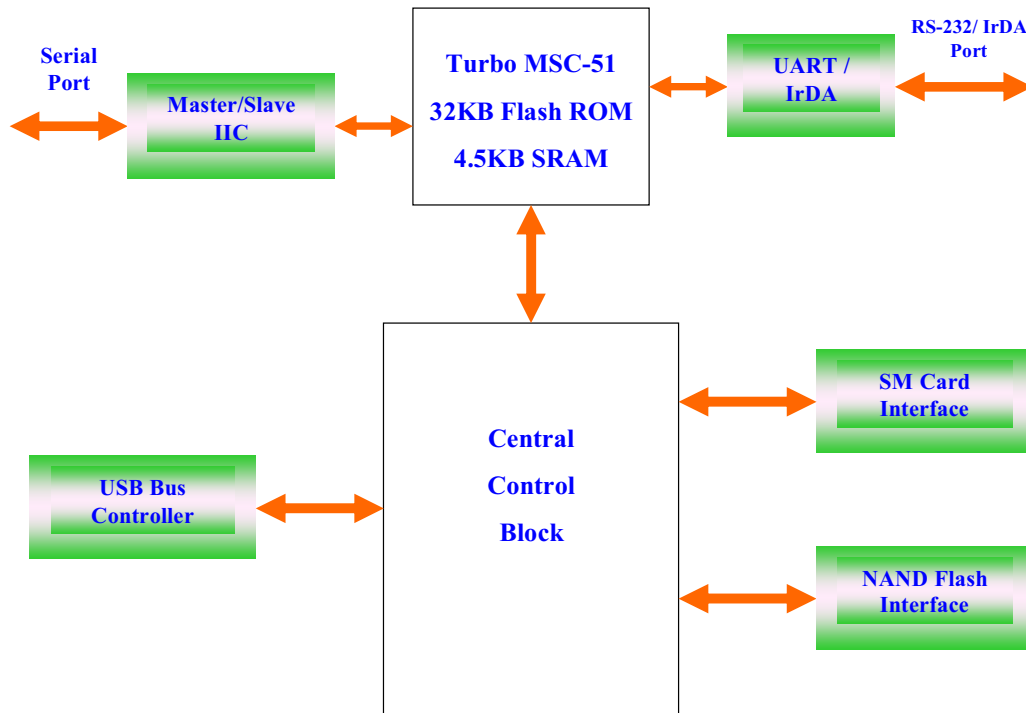
3.   BLOCK DIAGRAM

Figure 1. System block diagram

4. PIN ASSIGNMENT - 48 PIN LQFP

DPLUS	37	24 PC2/SM_D2
DMINUS	38	23 P11
VDDD_PLL	39	22 P30/IIC_DA/RxD
VSSD_PLL	40	21 P47/SM_ALE
FILTER	41	20 P14
VSSA_PLL	42	19 P46/SM_RNB
VDDA_PLL	43	18 P13
PC6/SM_D6	44	17 P12
XTAL1	45	16 PC1/SM_D1
XTAL2	46	15 P17
P15	47	14 P16
PC7/SM_D7	48	13 P32/TM5

Top pins (left to right): 36 PC5/SM_D5, 35 P36/TM3, 34 PC4/SM_D4, 33 VSSP, 32 VDDP, 31 P45/SM_CLE, 30 P35, 29 P87/SM_WP, 28 P37/TM4, 27 VDDC, 26 P86/SM_WR, 25 PC3/SM_D3

Bottom pins (left to right): 1 VCCP_Flash, 2 VSSP_Flash, 3 RST, 4 VCCD_Flash, 5 VSSD_Flash, 6 TM1, 7 TM2, 8 P84/SM_CD1, 9 P10, 10 PC0/SM_D0, 11 P85/SM_RD, 12 P31/IIC_CL/TxD

IC1114-F48LQ
USB to SM/NAND
7x7x1.4mm

SM : Smart Media Card
VDDC : VDD for core design
VDDP : VDD for pad design
_Flash : Power pad for flash block
_PLL : Power pad for PLL block

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5.   APPLICATION EXAMPLE

−   USB to SM flash card reader/writer

−   Flash disk controller

6.   OPERATING RANGES

Commercial devices case temperature	0 to +70 ℃
VCC supply voltage	+3.0 to 3.6V
Input Voltage	Vss-0.3, V_{DD}+0.3
Oscillator frequency	12 MHz

Operating ranges define those limits between which the functionality of the device is guaranteed.

7.   PACKAGE & FINAL PRODUCT INFORMATION

Type	Body Size (mm)	Pin Length (mm)
48 pin LQFP	7 x 7 x 1.4	0.75

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