![explora logo]

Avatar MX51

PRODUCT SUMMARY

The Avatar MX51 is a member of Explora's System on Module Series (i.MX25, i.MX51, and other processors).

The Avatar modules are complete computers, implemented on a small board and ready to be designed into your embedded system.

Avatar MX51 module includes a Freescale™ i.MX51 processor, USB PHY, DDR2 and eMMC or microSD socket. The integrated LCD controller allows direct connection to an LCD.

The Avatar MX51 is specifically targeted for embedded applications where size, performance, rugged solutions and cost are critical factors.

![freescale semiconductor logo]

SPECIFICATIONS

- 10/100Mbps Ethernet
- High Speed (480 Mbps) USB 2.0 OTG
- High Speed (480 Mbps) USB 2.0 Host
- LCD Controller: Connects directly to high-resolution LCD displays
- MicroSD Card interface
- Embedded RTC
- External 16 bits programmable expansion interface (WEIM)
- Multiple connectivity ports:
  - I2C
  - One wire
  - SPI
  - UART
- Other peripheral interfaces:
  - Direct interface to matrix Keypad
  - Resistive Touch screen controller
  - Accessible User GPIO
  - Pulse Width Modulators (PWM)
  - Direct interface to audio CODEC
  - SD/MMC interface
  - Integrated two channel 12 bits ADC
  - TV out RGB
  - CMOS Sensor Interface

KEY FEATURES

- Fast DDR2 memory system (faster than SDRAM).
- Production quality BSP and WinCE enhancements (possibility of dual WinCE image …).
- Onboard USB PHY allows direct connection to USB connector (OTG, Host).
- Onboard Ethernet PHY allows direct connection to Ethernet connector (magnetic & RJ-45).
- Two rugged Connectors allowing connection to baseboard.
- Dual contacts per pin requested for choc and vibration resistance
- High density .050 mil double row 100 pins connector
- Three board-to-board stack height options:
  - 0.250mil [6.35mm]
  - 0.320mil [8.13mm]
  - 0.390mil [9.91mm]

OS SUPPORT & DRIVERS

- Windows Embedded CE
- WinCE Custom driver development
- WinCE technical support

![Windows Embedded CE logo]

Explora Technologies
www.explora-tech.com

360, Franquet Street, suite 20, Quebec (Quebec) G1P 4N3 Canada
Tel: 418 658 5556 Fax: 418-263 5160

explora

SMALL WONDER

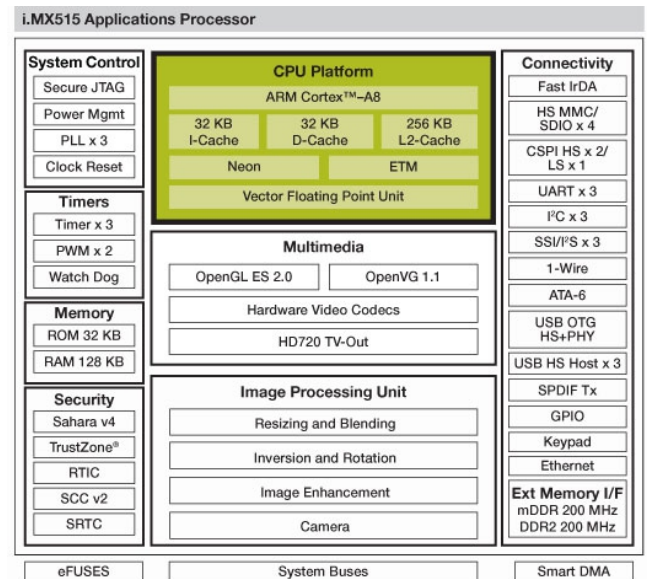|	
Width	2.4 inches
	61 mm
Lenght	3.4 inches
	86.4 mm

Avatar MX51

PROCESSOR

Freescale™'s i.MX51 applications processors balance the performance, power consumption, connectivity and multimedia capabilities necessary to drive today's latest and greatest products. It features Freescale's advanced and power-efficient implementation of the ARM Cortex™-A8 core, which operates at speeds up to 800 MHz

Benefits include high performance processing and multimedia capabilities, hardware acceleration that enables very low power consumption for video and graphics, and a high level of integration.

STANDARD AVATAR SYSTEM ON MODULE SERIES PINOUT

- USB 2.0 OTG
- USB 2.0 Host
- UART (3x)
- LCD Controller
- Audio Interface
- User SD-Card interface
- Matrix Keypad (4x4)
- I2C (2x)
- One-wire
- SPI (8 chip select)
- Pulse Width Modulators (PWM)
- 10/100Mbps Ethernet port
- External 16 bits programmable expansion interface
- Resistive Touch screen interface
- User GPIO
- Backup cell for Real Time Clock
- ADC channel
- CMOS Sensor Interface

i.MX515 Applications Processor

System Control	CPU Platform			Connectivity
Secure JTAG	ARM Cortex™–A8			Fast IrDA
Power Mgmt	32 KB I-Cache	32 KB D-Cache	256 KB L2-Cache	HS MMC/ SDIO x 4
PLL x 3	Neon		ETM	CSPI HS x 2/ LS x 1
Clock Reset	Vector Floating Point Unit			UART x 3
Timers				I²C x 3
Timer x 3	**Multimedia**			SSI/I²S x 3
PWM x 2	OpenGL ES 2.0		OpenVG 1.1	1-Wire
Watch Dog	Hardware Video Codecs			ATA-6
Memory	HD720 TV-Out			USB OTG HS+PHY
ROM 32 KB				USB HS Host x 3
RAM 128 KB	**Image Processing Unit**			SPDIF Tx
Security	Resizing and Blending			GPIO
Sahara v4	Inversion and Rotation			Keypad
TrustZone®	Image Enhancement			Ethernet
RTIC				**Ext Memory I/F** mDDR 200 MHz DDR2 200 MHz
SCC v2	Camera			
SRTC				
eFUSES	System Buses			Smart DMA

The standard Avatar System On Module pinout allows compatibility upgrade on all Avatar System On Module series (i.MX25, i.MX51 and other processors).
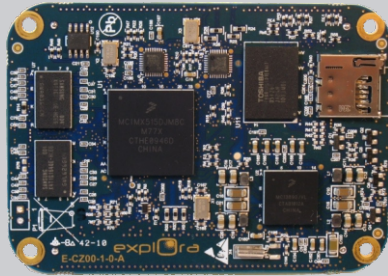
SPECIAL PERIPHERALS FOR THE AVATAR MX51

Additional interface GPIO are available on Avatar MX51 specific pins.

ARM POWERED®

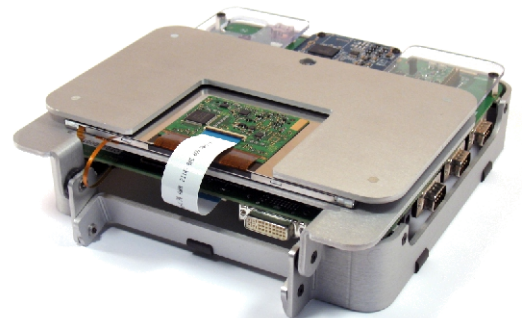# Avatar MX51

AVATAR SYSTEM ON MODULE ORDERING CODES

Z	CZ	C	60	515	800	3	2	I	01

Model
01

Operating Temperature
I = -20 to 85C
E = -40 to 85C

System Configuration
2 = eMMC base system
3 = microSD base system

RAM
2 = 256 Mbytes
3 = 512 Mbytes

Processor Speed
800 = 800 Mhz

Processor
515 = i.MX515, other processor model of i.MX51 series available on demand.

Version (WinCE)
60 = 6.0
N = No operating system

Operating System
C = WinCE
N = None

CZ

Z

AVATAR DEVELOPPMENT KIT

CZ000-51