Newton Hardware

Newton Licensing Support

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Diagram

Generic Hardware Block
Digital Controller Subsystems

- High Speed 32 bit External I/O Bus
- GPO Subsystem
- ICD Controller
- Power Management
- 4 Serial Ports
- DMA Control
- Interrupt Control
- Memory Control
- CPU Interface
Serial Ports

- Data Rates to 115.2 Kbits/sec
- NRZ, 00K, 7V-IR, IRDA Modes
- Channel 1 (Optional IR)
  Data Rates to 230.4 Kbps
- AppleTalk, Async, SDLC Modes

(Internal Serial Slot)

Channel 0 (Newton Interconnect)
Serial Ports (cont.)

- 38.4Kbps/sec
- NRZ
- (Optional Keyboard, Serial Slot)
- Channel 2 (Modem External
  - Data Rates to 19.2Kbps/sec
- NRZ
- (Internal Serial Slot)
- Channel 3 (Modem External
  Devices, Internal Serial Slot)
2 Channel Audio Input

Signals

6 General Purpose Digital I/O

Tablet Subsystem

Audio Subsystem

Battery Measurement

Analog Controller Subsystems
Hardware Modules

- ROM SIMM
- Main Logic Board (MLB)
- LCD/Tablet Module
Glass with polyester overlay

Anti-glare Resistive Tablet

EL Momentary Backlight

0.24mm x 0.24mm Dot Size

0.26mm x 0.26mm Dot Pitch

Area

130.8mm x 89.2mm Physical Active

480x320 (1/2 VGA) Resolution

Single Scan, Transmissive LCD

LCD/Tablet Module
Power Supplies

2 or 4 Mbytes of Flash

1 or 4 Mbytes of DRAM

2 PCMCIA controllers

IR Transceiver

Analog Controller

Digital Controller

Cirrus Logic Voyager chipset

STMicroelectronics

ARM CPU (160MHz or 100 MHz)

MLB Components
FLASH

- Support for 8 MiBytes of Additional ROM
- Support for 8 MiBytes of Licensee ROM
- 8 MiBytes of ROM for OS

ROM Size
Supplies
Available MLB Power

• 12 Volt 1.4 W available

• 5 Volt 2.5 W available

• 3.3 Volt 1.1 W available
Power Sources

- 7.3 Volt, 1.2 A External Input Jack
- 4 Cell Battery Connections (A or AA)
- Alkaline or NiMH Batteries
- External Newton Interconnect
- Internal Serial Slot
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- 35 Hours Mixed (80% Idle)
- 48 Hours Idle
- 20 Hours Run Mode

NIMH

- 75 Hours Mixed (80% Idle)
- 117 Hours Idle Mode
- 35 Hours Run Mode

Alkaline

Battery Life (AA Cells)
MLB Side A

Side A MLB Outline

- Two Type-II PCMCIA connectors, power jack, IR optics, PS circuitry

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Tail power supply magnets
Most of the digital ICs and misc components, ROM SIMM connector.

Side A

1.41" Battery Area Connector Cage

Side B MLB Outline

MLB Side B
Docking Signal

3.3 Volt/5 Volt Supply

Audio In/Out (1K Ohm Load)

Serial Channel 0 (RS-422 Levels)

Power Out

Power In

26 Pin SMD Custom Header

Interconnect

External Newton
• 2.1 PC Card Compliant
• Type I or Type II PCMCIA Cards
• External 2 PCMCIA Slots
General Purpose I/O
Power In (Charging Capabilities)
Unused Battery
Sound In
Serial Channel 3 (CMOS Levels)
Serial Channel 2 (CMOS Levels)
Serial Channel 0 (CMOS Levels)
32 Pin SMD Header

Internal Serial Slot
3.68MHz Clock
•
Interrupt Signal
•
Ready Signal
•
2 Chipselects
•
32 Bit Data Bus
•
Address Bus
•
72 Pin Mini Memory Connector
•

Internal ROM Slot
• Power Supply
• LCD Clocks
• 8 Bit Data
• 20 Pin Pressure Flex Connector

Internal LCD Connector
Internal Battery Connector

- 2 Gold Plated Pads
- Temperature Sense
- Type Sense
- 3 Through holes (two Pos, 1 Neg)
• On/Off Switch
• Speaker
• Microphone
• EL Panel

Connections
Various Other Internal
Battery Supply Designer's Guide  •  Newton Interconnect Designer's Guide
Main Logic Board Customization Guide  •  Newton Internal Slot Designer's Guide
ROM SIMM Designer's Guide  •  Designer's Guidelines – Architecture Overview
Development Notes