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Specifications

Physical dimensions:

- Approximate dimensions: 242mm×228mm×32mm;
- Approximate weight: 1.45KG with LiFeP battery; 1.58KG with NiMH battery;
- Configuration: Convertible laptop with pivoting, reversible display; dirt- and moisture-resistant system enclosure; no fan.

Core electronics:

- CPU: x86-compatible processor with 64KB each L1 I and D cache; at least 128KB L2 cache; AMD Geode LX-700@0.8W ([datasheet](#));
- CPU clock speed: 433 Mhz;
- ISA compatibility: Support for both the MMX and 3DNow! x86 instruction-set extensions; Athlon instruction set (including MMX and 3DNow! Enhanced) with additional Geode-specific instructions;
- Companion chips: PCI and memory interface integrated with CPU; North Bridge: PCI and Memory Interface integrated with Geode CPU; AMD CS5536 South Bridge ([datasheet](#));
- Graphics controller: Integrated with Geode CPU; unified memory architecture;
- Embedded controller: [ENE KB3700](#) or ENE KB3700B;
- DRAM memory: 256 MiB dynamic RAM;
- Data rate: Dual — DDR333 — 166 Mhz;
- 1024KB SPI-interface flash ROM;
- Mass storage: 1024 MiB SLC NAND flash, high-speed flash controller;
- Drives: No rotating media;
- CAFE ASIC (Camera, Flash Enabler chip, provides high-performance Camera, NAND FLASH and SD interfaces); Marvell 88ALP01: ([CAFE specification](#)).

Display:

- Liquid-crystal display: 7.5” Dual-mode TFT display;
- Viewing area: 152.4mm × 114.3mm;
- Resolution: 1200 (H) × 900 (V) resolution (200 DPI);
- Monochrome display: High-resolution, reflective sunlight-readable monochrome mode; Color display: Standard-resolution, Quincunx-sampled, transmissive color mode;
- LCD power consumption: 0.1 Watt with backlight off; 0.2–1.0 Watt with backlight on;

- The display-controller chip (DCON) with memory that enables the display to remain live with the processor suspended; the display and this chip are the basis of our extremely low power architecture; the display controller chip also enables deswizzling and anti-aliasing in color mode.

Integrated peripherals:

- Keyboard: 80+ keys, 1.0mm stroke; sealed rubber-membrane key-switch assembly;
 - [Keyboard layout details](#);
 - Keyboard layout pictures: [international](#), [Thai](#), [Arabic](#), [Spanish](#), [Portuguese](#), [West African](#), [Urdu](#), [Mongolian](#), [Cyrillic](#), [Amharic](#);
- Gamepad: Two sets of four-direction cursor-control keys;
- Touchpad: Dual capacitance/resistive touchpad; supports written-input mode; ALPS Electric Dual capacitive/resistive touchpad;
- Audio: AC97-compatible audio subsystem; internal stereo speakers and amplifier; internal monophonic microphone; jacks for external headphones and microphone; Analog Devices AD1888 and Analog Devices SSM2211 for audio amplification;
- Wireless networking: Integrated 802.11b/g (2.4GHz) interface; 802.11s (Mesh) networking supported; dual adjustable, rotating coaxial antennas; supports diversity reception; capable of mesh operation when CPU is powered down; Marvell Libertas 88W8388 controller and 88W8015 radio;
- Status indicators: Power, battery, WiFi (2); visible when lid is open or closed; microphone in-use and camera in-use visible when lid is open;
- Video camera: integrated color vision camera; 640×480 resolution at 30FPS; [Omnivision OV7670](#).

External connectors:

- DC power: 6mm (1.65mm center pin) connector; 11 to 18 V input usable, -32 to 40 V input tolerated; power draw limited to 15 W;
- Headphone output: Standard 3.5mm 3-pin switched stereo audio jack;
- Microphone input: Standard 3.5mm 2-pin switched mono microphone jack; selectable 2V DC bias; selectable sensor-input mode (DC or AC coupled);
- USB: Three Type-A USB-2.0 connectors; up to 1A power supplied (total);
- Flash expansion: MMC/SD Card slot.

Battery:

- Pack type: 2 or 4 cells LiFePO₄; or 5 cells NiMH, approximately 6V series configuration;
- Capacity: 22.8 Watt-hours (LiFePO₄); 16.5 Watt-hours (NiMH);
- Fully-enclosed “hard” case; user removable;
- Electronics integrated with pack provide:

- Identification;
- Battery charge and capacity information;
- Thermal and over-current sensors along with cutoff switch to protect battery;
- Minimum 2,000 charge/discharge cycles (to 50% capacity of new);
- [Power management](#) will be critical.

BIOS/loader

- Open Firmware used to load the operating system.

Environmental specifications:

- Temperature: UL certification planned to 45C in Q32007, pending 50C certification in mid-2008;
- Humidity: UL certification planned to IP42 (perhaps higher) when closed, the unit should seal well enough that children walking to and from school need not fear rainstorms and dust;
- Maximum altitude: -15m to 3048m (14.7 to 10.1 PSIA) (operating), -15m to 12192m (14.7 to 4.4 PSIA) (non-operating);
- Shock 125g, 2ms, half-sine (operating) 200g, 2ms, half-sine (non-operating);
- Random vibration: 0.75g zero-to-peak, 10Hz to 500Hz, 0.25 oct/min sweep rate (operating); 1.5g zero-to-peak, 10Hz to 500Hz, 0.5 oct/min sweep rate (nonoperating);
- 2mm plastic walls (1.3mm is typical for most systems).

Regulatory requirements:

- The usual US and EU EMI/EMC (Electromagnetic Interference and Compatibility) requirements will be met;
- The laptop meets IEC 60950-1, EN 60950-1, and CSA/UL 60950-1 specifications. It also complies with UL 1310 and UL 498. In order to guarantee the safety of children using the laptop, it also passes ASTM F 963;
- The external power adapter complies with IEC, EN, and CSA/UL 60950-1;
- The removable battery pack complies with IEC, EN, and CSA/UL 60950-1 and UL 2054;
- RoHS (Restriction of Hazardous Substances Directive – EU) compliant.