

1



One Laptop per Child

The Laptop

Sept. 18, 2008

ONE LAPTOP PER CHILD



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Laptop, 1992

Apple Macintosh Duo 230

640x400 (190x120mm) Monochrome Display

33 MHz Processor

8 MB RAM

0.1 GB disk storage

4.2 lbs

24W charger

\$2800



Laptop, 2008

Apple MacBook Pro

1440 x 900 (332x208mm) Color display

2GHz Dual Processor

Graphics Coprocessor

2000 MB RAM

160 GB disk storage

5.4 lbs

85W charger

\$2800



Traditional Laptops

- Continual improvement:
 - More computing power
 - More non-volatile storage
- Constant Price Floor
- Designed for Office Environments

Laptop, 2008

OLPC XO

1200 x 900 (152x114mm) Color Display

466 MHz Processor

Graphics Coprocessor

256 MB RAM

1 GB solid-state storage

1.45 kg

17W charger

\$200



Why an XO ?

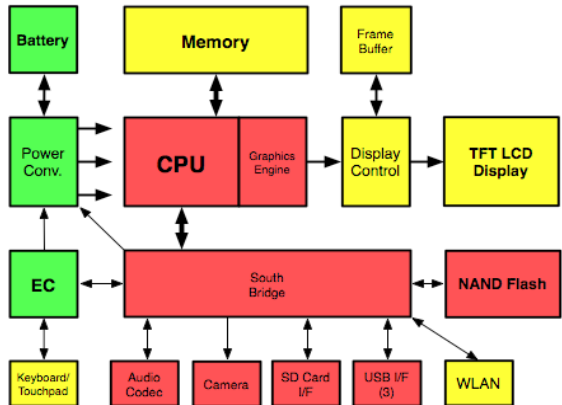
- Sunlight Readable Display
- Low Power
- Robustness
 - No moving parts
 - Other than buttons
- Simple to Repair

XO Display

- Sunlight readable (reflective/transmissive)
- 1200 x 900 monochrome
- Slightly less resolution in color
- Replaceable LED backlight
 - Low power, low cost, safe
 - At 50 C, difficult to reach 5 year lifetime

XO Low Power

- Independently powered subsystems:
 - Display
 - Wireless Net
- Fast suspend/resume
 - tens milliSec.
- LED backlight



XO Power Management

- Battery performance strongly dependent on software activity !
- Available today:
 - Hardware ready for suspend/resume
 - 40K cycles tested vs. 20 for normal laptop
 - About 4 hours of battery life during normal use
 - 14-16 hours of battery life in sleep mode
- Future:
 - OHM management for suspend/resume
 - Aggressive CPU suspend

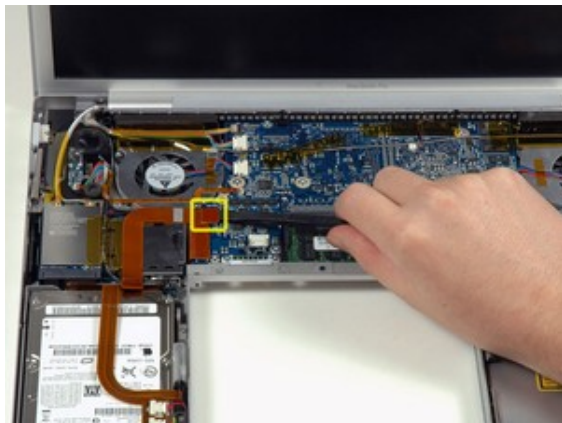
XO Robustness

- No disk drive !
- No fans !
- Sturdy case
 - ABS/PC bumpers
 - Steel plate in base
- 1.5 m drop test
- Water and dust proof keyboard
- 5 year lifetime



XO - Simple to repair

- Eight screws to replace display
- Single motherboard



XO Gen 2 Goals

(in order)

- Lower Power
- Lower Cost
- More Robust
- More Performance



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Roadmap

