

Apple iPhone was launched (yes, it is “iPhone” *)

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*) Apple has agreed with Cisco on using
the name, details not known

EXECUTIVE SUMMARY:

Apple iPhone is a serious high-end contender

Conclusions	Nokia's Implications
1. iPhone touch screen UI may set a new standard of state-of-art	<ul style="list-style-type: none">▶ 3.5 inc touch screen display, only one hardware button▶ New UI paradigm that has a promise of unparalleled ease-of-use▶ Cool, seamlessly integrated internet applications on top of OS X
2. iPhone may initially change the very high-end of market	<ul style="list-style-type: none">▶ User interface has been a big strength for Nokia – consumer research indicates this is in decline. Urgent action needed to prevent further erosion of this position▶ Appoint Nokia Head of UI i.e. not tied to BG or platform▶ Nokia needs to develop touch UI to fight back. S60 should be focus, but Maemo platform can be a critical strength due to openness.
3. The market share impact will be felt in 2008	<ul style="list-style-type: none">▶ iPhone may stimulate high-end demand in general▶ NSeries is challenged in internet experiences and usability.▶ Hit for MP will come if and when Apple makes “mini” version of iPhone.
4. Instead of launching MVNO, exclusivity with Cingular	<ul style="list-style-type: none">▶ The US launch – June 2007▶ European launch – Q4 2007▶ Asian launch – 2008▶ 2008 mkt share target 1% (10 M units)
	<ul style="list-style-type: none">▶ There is a multi-year exclusive agreement with Cingular in US▶ iPhone will be sold both in Apple stores and Cingular stores
	<ul style="list-style-type: none">▶ The 1% volume share target could translate into 4% value share, taking ~ 30% share of the >300 € price band▶ iPhone may help US entry for N-Series via T-Mobile. Assign team to work collaboratively with T-Mobile – ‘help them help us’▶ Other US operators need to respond to Cingular and Apple. Work very closely with T-Mobile to develop counter offer using e.g. N-Series including N800

iPhone was launched in Steve Jobs' keynote at MacWorld on Tuesday

- In addition to iPhone Apple introduced Apple TV
- The iPhone part of Steve's keynote speech lasted for 1h 15 minutes
 - clearly THE launch for Apple this year
- Eric Schmidt (Google CEO), Jerry Yang (Yahoo co-founder and Chief) and Stan Sigman (Cingular CEO) joined the stage with Steve to tell about the availability of their services in iPhone
- Apple declared the end of PC era



"Today we've added to the Mac and iPod Apple TV and iPhone. The Mac is the only one you really think of as a computer". So Apple is going to drop "Computer" from their name. Apple is now "Apple Inc." ... Quoting Wayne Gretsky: "I skate to where the puck is going to be, not where it has been."

Is this a direct challenge to M's Multimedia
Computer positioning?

iPhone touch screen UI may set a new standard of state-of-art

- The new user interface may change the standards of the superior user experience for the whole market
 - Commented as *“visually stunning and incredibly responsive”**
 - Apple may emerge to be in a good position with its announced +200 patents
 - User interface has been a big strength for Nokia, so the UI may be the biggest threat that iPhone presents
- OS X is the new kid in the block, it does hit the appeal of Series 60 (and Microsoft Windows for Mobile)
 - However, it is not likely that Apple would be selling its OS platform to others any time soon
 - Also unclear if 3rd party applications are allowed, i.e. if the SW is in practise proprietary
 - No mention either of Java support, unusual user input method may be the reason. Lack of Java would shut out a big mass of existing SW.

* Avi Greengart, Current Analysis

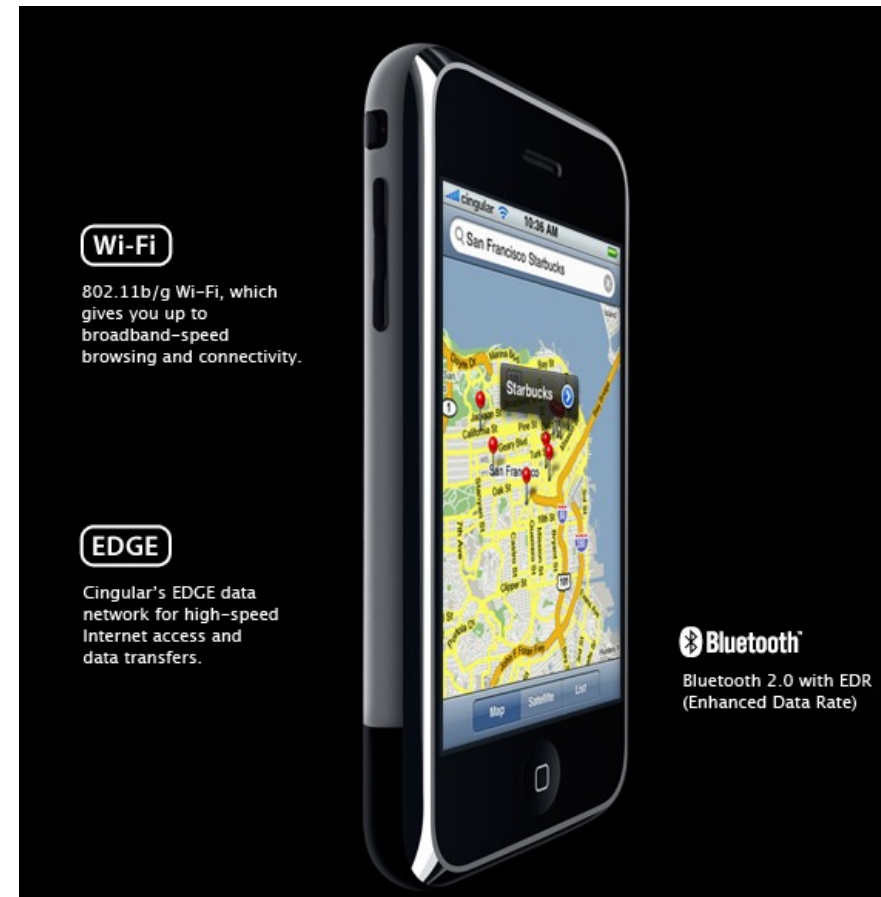
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Nokia needs to develop the touch UI to fight back. S60 should be focus. Maemo platform is critical strength due to openness. Nokia needs a Chief UI architect to re-energize Nokia's UI innovation across platforms and businesses.

iPhone may initially change the very high-end of market

- iPhone will capture the coolness in US media, there is not much coolness left for Motorola
 - A price war may emerge by Motorola trying to push their new models
 - iPhone will also hurt SonyEricsson's momentum and coherent music strategy
 - N-Series and SEMC Walkman probably need to clearly undercut iPhone pricing to succeed in the market
 - Expect RIM and Palm to suffer – their stock prices have been most badly beaten
 - All the high-end devices attract the enterprise segment – expect that also for iPhone
- iPhone is not a super feature pack
 - iPhone has quad-band GSM-EDGE, WLAN and Bluetooth, but no 3G nor HSDPA
 - (only) 2MB camera
 - Apple changes its specs frequently though, no room for complacency
- Expect Apple to launch lower-price point models
 - Anyway, scaling the user experience to lower HW specs may be challenging. iPhone mini may be closer to iPod UI



N-Series is challenged in internet experiences and usability. Hit for MP will come if and when Apple makes “mini” version of iPhone.

The market share impact will be felt in 2008

- The launch schedule
 - The US launch – June 2007
 - European launch – Q4 2007
 - Asian launch – 2008
- 2008 mkt share target: 1% (10 M units)
- If Apple succeeds in this target at the announced price point, it will create a new high-end market



- \$499/\$599 with two-year contract would be unusual for the heavily subsidised US market ([see the following page for pricing analysis](#))
- The 1% volume share target might translate into ~4% value share, taking ~ 30% share of the >300 € price band
- iPhone may stimulate high-end demand in general, helping everybody to grow volumes in the high price band
- It is very challenging, though, for Apple to achieve their target with current price levels and only one phone model (*stated by Richard Windsor from Nomura, among others*)

iPhone pricing analysis

Only US pricing revealed,
we are using here converted prices

- Because of the two-year contract, it is plausible to assume existence of subsidies
 - The cost of the brand-new platform, esp. R&D allocation can be assumed to be very high
- The Samsung Blackjack subsidy is taken as the point of reference for this analysis
 - Even higher subsidy would be plausible
- No details were given on Cingular contract pricing
- 499\$ after subsidy is a steep price in US market.
- Similar price range as Nokia N95

	\$	€	note
iPhone 8GB	599	460	w/o tax, 2yr contract
iPhone 4GB	499	384	w/o tax, 2yr contract
iPhone 4GB without subsidy	649	500	Estimated 150\$ subsidy, as Cingular has on similar price range Samsung SGH-i600. \$100 mail-in rebate not included
European retail price	779	600	Including 20% VAT
Trade price	552	425	Assuming 15% channel margin
For comparison			
iPod nano 4GB	199	154	w/o tax
iPod 30GB	249	225	w/o tax
iPod 80GB	349	292	w/o tax
Motorola V3i iTunes	249	166	Cingular, w/o tax, 2yr contract, Europe Amazon.de SIM-free
SonyEricsson W810i	174	208	Cingular, w/o tax, 2yr contract, Europe Amazon.de SIM-free

Apple's potential position in the handset, smartphone, and mobile platforms markets.

Based on highly speculative iPhone sales of 6.5 million during 2007 and 14 million during 2008.

Apple has the potential to be a
Top Ten global handset player by 2008.

Strategy Analytics Top 5 Handset vendors and Market Share and Projections			
	2006	2007 (P)	2008 (P)
1. Nokia	34.2%	34.0%	32.9%
2. Motorola	21.1%	24.1%	25.6%
3. Samsung	11.8%	12.1%	12.5%
4. Sony Ericsson	6.9%	7.9%	8.0%
5. LG Electronics	6.5%	6.7%	7.0%
~10. Apple, a potential top 10 by 2008	0.0%	0.6%	1.1%

	3Q06	Market Share (%) 3Q06
Nokia	10,090,000	56.3
Motorola	1,333,900	7.4
NEC	810,000	4.5
Panasonic	800,500	4.5
Sharp	790,000	4.4
Others	4,095,623	22.6
Total	17,920,023	100.0
NA = not applicable		

Source: Gartner Dataquest (November 2006)

Apple could be the number two smartphone vendor (if the iPhone is classified as a smartphone.)

IDC's Converged Mobile Device Platforms			
	2006	2007 (P)	2008 (P)
1. Symbian	63.9%	61.0%	59.4%
2. Linux	16.5%	13.9%	12.1%
3. Windows Mobile	9.8%	13.4%	16.9%
4. BlackBerry OS	7.3%	9.2%	9.0%
5. Palm OS	2.2%	2.3%	2.5%

Sales of 14 million iPhones during 2007 could make the Mac OS X "Mobile" the number two mobile platform.

Instead of launching MVNO, exclusivity with Cingular

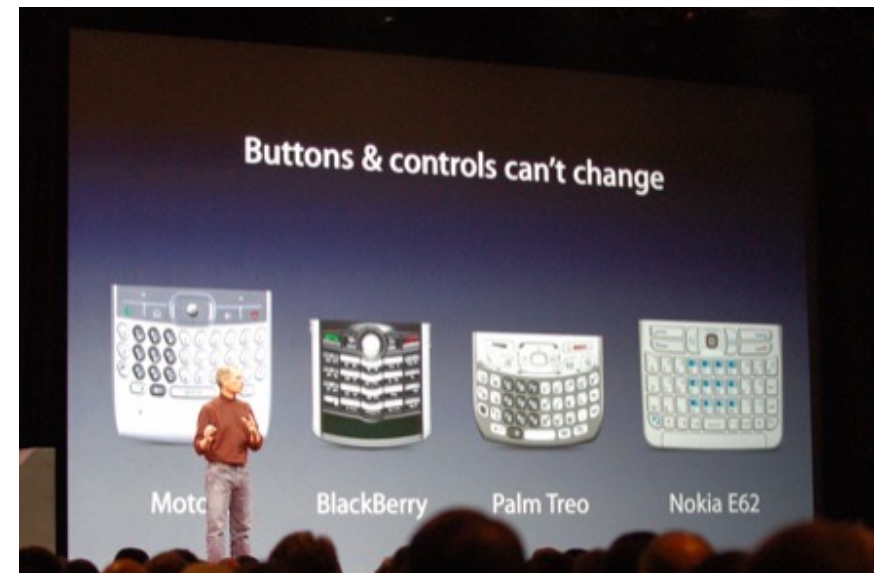
- Cingular got multi-year exclusivity to iPhone. In exchange it gave up to Apple in many respects
 - Cingular has allowed Apple to launch a device with WLAN and inbuilt services
 - The Yahoo and Google experiences are built in to the Apple phone
 - iTunes synch is done in cradle, no OTA
 - The multi-year exclusivity of the Cingular – Apple arrangement makes one ask if Apple gets a share of data revenues or Cingular iTunes revenues?
 - This may be a start for the whole market to change
- iPhone will be sold both in Apple stores and Cingular stores
- This is a marriage of convenience built on mutual distrust and recognition that each has assets the other needs



Other US operators need desperately something against Cingular and Apple.
Work very closely especially with T-Mobile.

iPhone has the biggest impact on the definition of coolness

- Nokia impact minimal in terms of financials, but may impede US penetration or success
- Distribution limitations may restrict impact of Apple iPhone, but device continues to have significant disruptive potential.
- Will pure touch input appeal to more mass market consumers?
 - Even though Steve Jobs emphasized iPhone superiority to “Buttons”, it is to be expected that the Consumer QWERTY category will continue to succeed.
 - Consumer QWERTY is at a different price point
 - How will consumers perceive product durability/reliability?



Apple got a stock price boost from the launch (Apple, Nokia, RIM and PALM Stock Prices)



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At launch RIM and PALM were worst hit, being heavily US leveraged, and seeing their consumer growth expectations dampened.

Summary of recommended Nokia actions

1. Work very closely with T-Mobile
 - Other US operators need desperately something against Cingular and Apple
2. Prioritize touch UI development, simplifying basic functionality and PC suite development very high.
 - Nokia needs a Chief UI designer.
 - Evaluate new innovative input methods such as Zi's Qix like approach, to be first and make a splash.
3. Leverage N800 with its touch screen - it competes nearly in the same arena (see the details on the next page)
 - Introduce a cellular maemo device to position that even closer to iPhone
4. Analyse what could be Apple's next release of "iPhone mini" to mass market price points and plan counter-measures for it.
5. Kill market for such an expensive device by filling mid-range with own/Google/Yahoo experiences
6. Accelerate Nokia's own free push e-mail project and make it less hidden within the company.
7. Investigate and play hard in possible IPR infringements
8. Drive key partnerships to highlight Nokia's superior strength in the market, keeping things in perspective.
 - Lock in local partnerships where Nokia is very strong (India, China, ME, other Asian markets, E Europe, W Europe).
 - Evaluate the partnership with Microsoft (the enemy of your enemy...)
9. Evaluate iPhone's potential in Asia where touchscreen UI has the most practical direct implications.
10. Highlight potential weaknesses of the iPhone:
 - There was little mention of security on the iPhone. Perhaps it lacks VPN, secure e-mail.
 - No mention of being able to install apps or upgrade the device or even change the battery.

What Nokia must do:

How to position the N800+ vs the iPhone? Potential?

- Form factor wise, the two devices are similar. The iPhone might excite the market for this exact form factor.
- iPhone look copy (i.e. black with silver on the perimeter) version might “steal” some of Apple’s coolness.
- N800 price is lower, even sans subsidies
- Key apps exist for N800 that do not for S60 (ie G talk, Skype)
- Can N800 be packaged with Nokia 3G handsets for an operator offering?
- Cellular development of the maemo platform and the politics surrounding it?
- More memory, other hardware upgrades probably needed.
- Developer community potential is great.



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iPhone more in detail

Timo Partanen

**Contribution from Scott Cooper, Gordon Murray-Smith
and Sanna Puha**

Apple iPhone – Key Facts

Technical Specifications

- Screen 3.5" touch & resolution 320 by 480 at 160 ppi
- Operating system OS X
- Storage 4GB or 8GB
- GSM Quad-band (MHz: 850, 900, 1800, 1900)
- Wireless data Wi-Fi (802.11b/g) + EDGE + Bluetooth 2.0
- Camera 2.0 MP
- Accelerometer & Proximity sensor
- Battery : Up to 5 hours Talk / Video / Browsing
Up to 16 hours Audio playback
Likely to be non-changeable battery as in iPod
- Dimensions 115 x 61 x 11.6mm & Weight 135g

Sales & Distribution

- **USA** – Sales start June 2007 exclusive via Cingular & Apple stores
(subject to FCC approval)
- **Europe** – Sales start Q4 2007
- **Asia** – Sales start early 2008

Price: \$499 (4GB model); \$599 (8GB model) - **2 year contract**

Disruptive Elements:

1. **Innovative UI (running on OS X): Oriented around contacts and rich internet communications enabled by finger touch input**
2. **Seamless integration with PC, Mac & Internet**
3. **Intelligent user experience: proximity & orientation sensors provide intelligence and enhanced power management**

User experience elements:

- Turns display off when you lift it to your ear (Proximity sensor)
- Orientation sensors for changing views in landscape and portrait
- Ambient Light sensors – changes brightness levels dependent on ambient light levels
- Seamless synchronisation via iTunes with PC, Mac etc (synchronisation not possible via WiFi)
- Visual voicemail: visual representation of your voicemails allowing you to directly access any messages
- Predictive, corrective input from on-screen qwerty-keypad

Do New:

- Search - Google search
- Maps - Google maps and iPhone map apps (unclear whether on-board or off-board maps). But no GPS so no real-time navigation
- Browsing - Safari web browser – (reportedly most advanced ever) Full screen with touch zoom-in functionality
- Widgets
- Push email – Yahoo web-based client for push email. Displays photos and graphics along with text

Hear New:

- Sync content with iTunes on PC or Mac

See New:

- Photo management application (scaled version of iPhoto?). Sync photos directly to PC or Mac and send via email with flick of finger

Accessories:

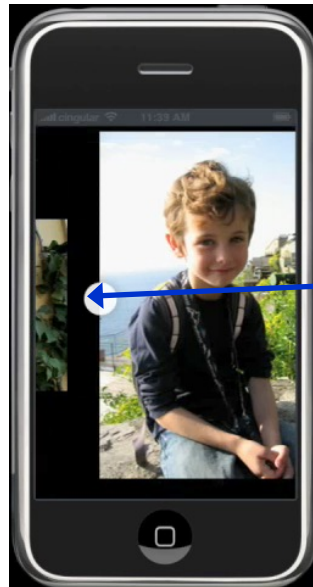
- Standard iPod interface enabling iPod accessory ecosystem

New User Interface - Multitouch

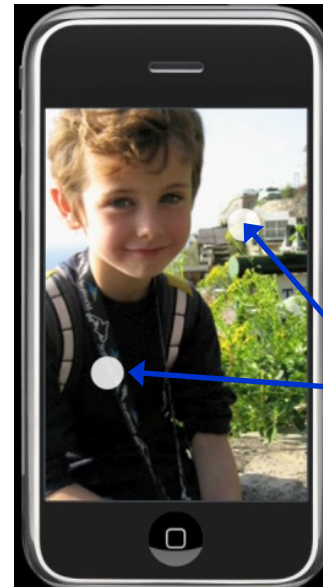


Tap to select

The only HW key takes you back to the main menu



Slide your finger to change photos/albums/movies as you would in turning the pages in book



Move your fingers further from each other to zoom-in

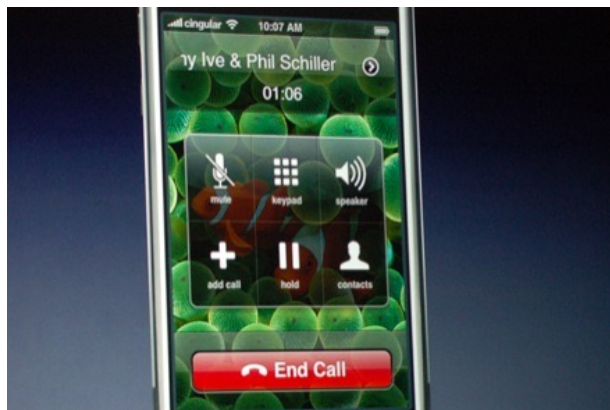
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Voice as a Killer Application

- Very simple and user friendly voice application
- Automatic contact synchronisation with PC, Mac or Internet services with iTunes
- Visual voicemails



Visual voice mail: see who has left voice mails and listen them individually. Just like email.



Clear choices what you can do when in call

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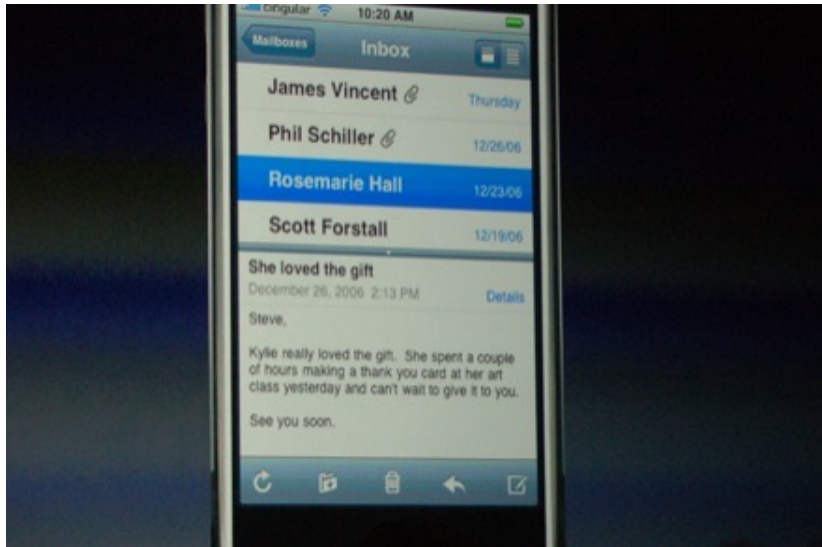
Favourites, call logs, address book – all very clear



Big number buttons make dialling very clear

Mobile Experiences

- Rich HTML-email
- Safari-browser
- Google maps
- Built-in widgets such as weather and stocks



Free Yahoo!'s IMAP push email built-in. Supports any POP3 or IMAP email service.

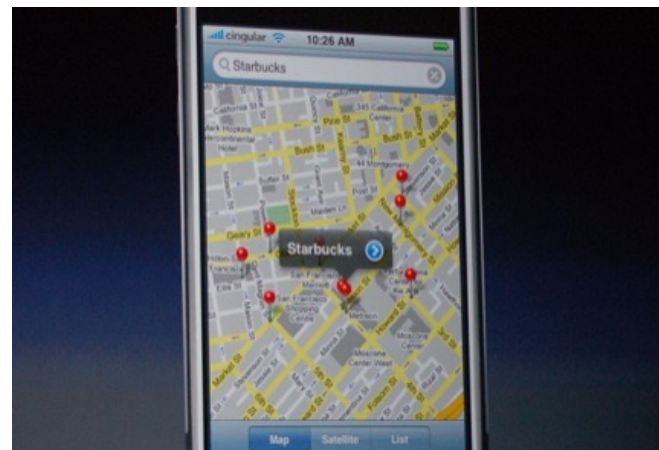
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Best HTML-browser, big screen over EDGE or WiFi, easy navigation with touch screen. Yahoo and Google search built-in.



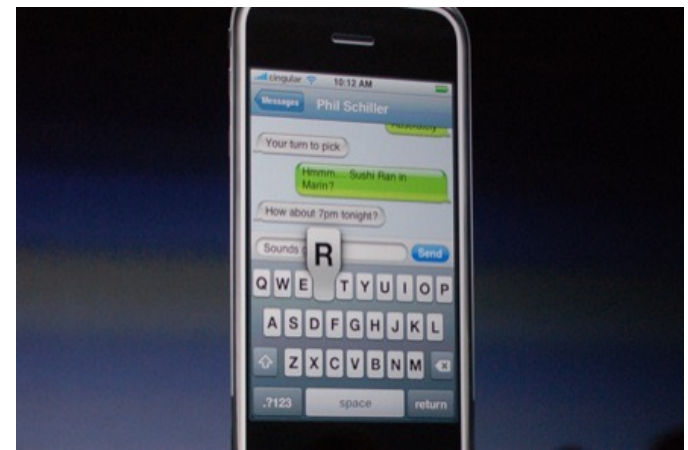
Build-in widgets. E.g. local weather.



Google maps and local search. However, no GPS.

Other Great Innovations

- Over 200 new patents
- iPhone's **accelerometer** detects when you rotate the device from portrait to landscape, then automatically changes the contents of the display, so you immediately see the entire width of a web page or a photo in its proper landscape aspect ratio.
- The **proximity sensor** detects when you lift iPhone to your ear and immediately turns off the display to save power and prevent inadvertent touches until iPhone is moved away.
- An **ambient light sensor** automatically adjusts the display's brightness to the appropriate level for the current ambient light, thereby enhancing the user experience and saving power at the same time.



SMS that shows your conversation history like in iChat.
Predictive, corrective input from qwerty-keypad.



Accelerometer – rotates the screen when you rotate the device.

Summary of Tech Specs

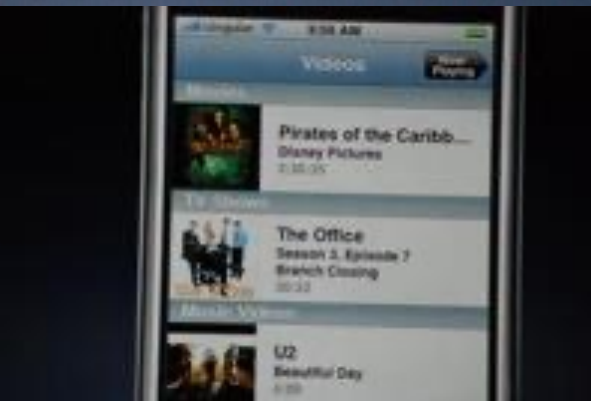
Screen size	3.5 inches
Screen resolution	320 by 480 at 160 ppi
Input method	Multi-touch
Operating system	OS X
Storage	4GB or 8GB
GSM	Quad-band (MHz: 850, 900, 1800, 1900)
Wireless data	Wi-Fi (802.11b/g) + EDGE + Bluetooth 2.0
Camera	2.0 megapixels
Battery	<ul style="list-style-type: none">•Up to 5 hours Talk / Video / Browsing•Up to 16 hours Audio playback
Dimensions	115 x 61 x 11.6mm
Weight	135 grams
Accessories	Stereo headphones Bluetooth headset

Likely to be non-changeable battery as in iPod

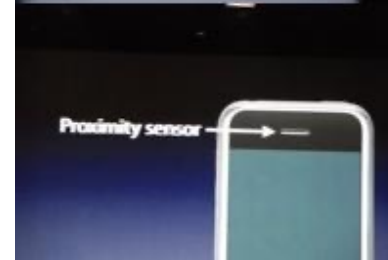
Hardware Speculation

- Apple is most probably using the first Application Processor of nVidia in iPhone.
- Made in “custom product mode” for customer
 - Release to Production 4Q 2006 -> roadmap suits iPhone production schedule
 - ARM11 @ 300 MHz
 - SC 15 video engine
 - H.264 D1, 30 fps, decode
 - OpenGL ES 2.0
 - OpenVG 1.0
- nVidia acquired PortalPlayer late last year and PortalPlayer has had co-operation with Apple. One factor in nVidia purchasing PortalPlayer was their connection with Apple.
- Other options for APEs include
 - Samsung mDiracIII+: no graphics processor
 - Intel MonahansP: Not that good at power management
- Sources: Pasi P. Suominen, http://www.nvidia.com/object/portalplayer_acquisition.html,
<http://www.macworld.co.uk/news/index.cfm?RSS&newsID=16545>

Additional Photos



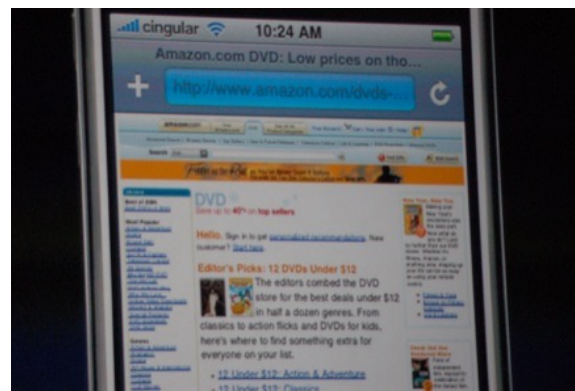
iPod music & video functionality as in stand-alone iPods.



Slide your finger to unlock the screen



Photo book application in iPhoto style



Close-up of web-browser

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