The UMPC at the end of 2006

by Geoff Walker

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Contrary to many predictions, the Ultra Mobile PC (UMPC) is still alive and kicking at the end of 2006. In fact, it's surprisingly vigorous. The primary reason seems to be that a continuous flow of new hardware is keeping the concept alive. The new hardware goes beyond UMPCs into the "mini-PC" area; there are even a few new Pocket PCs (products running Windows Mobile) that are creeping into the UMPC space.

There are almost no announcements of UMPC sales successes, so it's not clear that UMPCs are actually selling in any quantity. However, the UMPC is still at the level of a "Microsoft Product Version 1.0", so from Microsoft's point of view, that's not very important. Actually the lack of sales success can be seen as a failure of marketing. Neither Microsoft nor the OEMs have done any significant amount of UMPC advertising, so consumers have no idea what the devices are and, as a result, no desire to buy them.

So far there doesn't seem to be much usage of the UMPC as the "media-focused" personal device that Microsoft envisioned; instead, based on information from the many enthusiast sites (*see reference list at the end of the article*), the primary usage seems to be as a highly mobile secondary PC. This seems to indicate that there may actually be room in the market for something that's larger than a PDA and smaller than a notebook, yet can run all the same software as a notebook with some performance compromise.

An interesting secondary UMPC usage that's beginning to become more visible is as an automotive PC. In one of the few announcements of sales volume, Asus reported that they had sold 40,000 UMPCs within four months after launch, attributing their success to the fact that they had targeted automotive users rather than general computer users. On the other hand, one UMPC application that seems to be getting no traction at all is education. Actually that's not very surprising, since at an average selling price of around $900, the UMPC is a long way from the "one PC per kid" dream.

One factor that seems to be enabling the potential success of the UMPC is the growing realization by everyone (including Microsoft and the OEMs) that some form of integrated keyboard is critical. A keyboard-less computer is a very hard sell to anyone other than specialized vertical-market users. As a result, several of the new hardware products and concepts that are appearing include some form of slide-out or attachable keyboards. Acknowledging this trend, Samsung recently began including a folding USB keyboard with every UMPC they ship. This trend also tends to blur the line between UMPCs and mini-PCs.

Microsoft and Intel seem to have had surprisingly little impact on the UMPC during the nine months since launch. There has been little change in either company's UMPC websites since May 2006, when the last article about UMPCs appeared in this newsletter. Significantly, in the "Mobile Platform Vision 2007 and Beyond" session at the Intel Development Forum (IDF) held in San Francisco in September, there were only two mentions of the UMPC, and both were totally insignificant. To Intel, mobility is clearly mostly about notebooks.

There are high expectations that a number of new UMPCs will be announced at the Consumer Electronics Show (CES) held in Las Vegas in January 2007. In one of their recent blog posts, the Microsoft UMPC team said that they planned to launch "Vistagami" at CES. Contrary to some media reports, Vistagami is Microsoft's internal code name for a new Vista-compatible version of the Touch Pack, the add-on software that optimizes Windows for use on a UMPC, rather than a new UMPC hardware platform definition.

The remainder of this article reports briefly on all the UMPC and near-UMPC products that have been announced or are shipping as of the end of 2006. For easy reading, all company names are underlined.

UMPCs reported in the May 2006 article: Amtek seems to have had the most success of any UMPC manufacturer. Their T700 UMPC is now branded and sold as nine different products in four different geographies, as follows:

- US: TabletKiosk eo v7110, AgoPC Ago7, Azentek GB-810
- Europe: PaceBlade EasyBook P7, It's Label Origami, Ubiquio 701
- Japan: PBJ SmartCaddie
- Australia: TabletKiosk eo v7110, Pioneer Computers UMPC 700

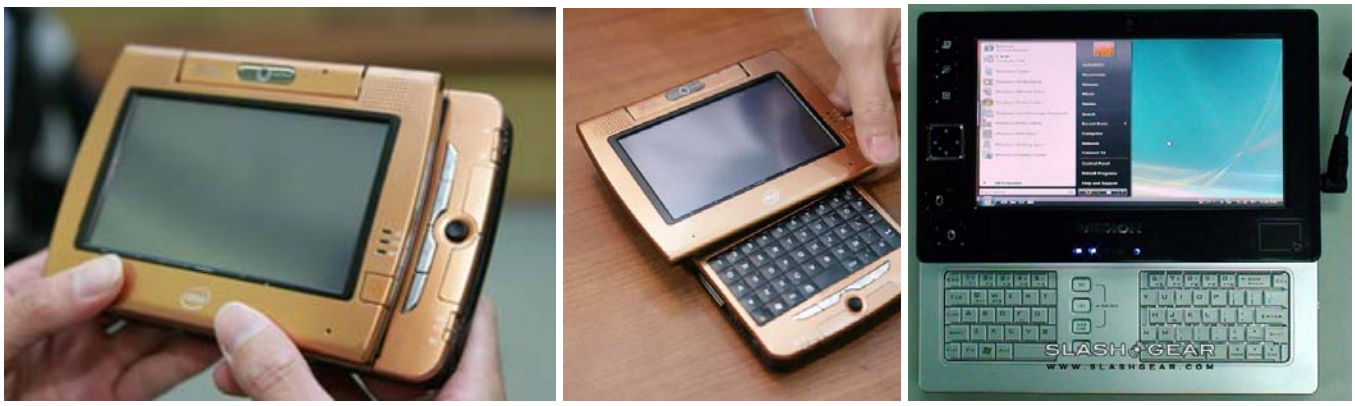
Asus finally shipped their R2H UMPC in August, after announcing it in March. The R2H has received wide exposure among the enthusiast sites for its ability to run Vista. In general, although Vista seems to work on the UMPC, almost nobody is actually using it yet because there's no Touch Pack, very few device drivers, no Windows Media DRM, and very poor performance. One enthusiast site reported that one die-hard user had even made Mac OS-X run on the R2H.

Elitegroup Computer Systems (ECS) is beginning to have some success with their H70 UMPC. In addition to being marketed as the Mininote UMPC by Founder in China, it's also being marketed as the eo i7210 by TabletKiosk in the USA, the Solo M1 by Daewoo Lucoms in Korea and the UMPC H700 by Pioneer Computers in Australia. According to Ultranauts.com, Founder's Mini-Note is selling well in China – although it's difficult to find out much about it, since nothing has been published in English.

Samsung introduced two new versions of their Q1 UMPC. The Q1P ($1,250) has a Pentium CPU instead of the original Celeron, while the Q1b ($899) has a VIA C7-M CPU. Both run at 1GHz and are visually indistinguishable from the original Q1.

New UMPCs announced since May 2006: Quanta, the largest notebook ODM in Taiwan, showed a prototype of their first UMPC product at the Intel Development Forum (IDF) held in Taipei, Taiwan in October. The product is based on an Intel reference design and includes Yahoo's "Go for Ultramobiles" software, a joint effort with Intel designed to deliver digital entertainment (TV, photos, music, etc.) on devices that use Intel Viiv technology. Hardware specifications aren't available yet, although the product is notable for its rotating, slide-out keyboard. Shipment is expected by the middle of 2007.

Arima, another of the notebook ODMs in Taiwan, announced their UM650UV1 UMPC. So far, the only visible OEM for the product is Medion, who markets it in Germany as the MD RIM 1000. The product, which uses a VIA C7-M CPU, is interesting because it has an integrated, slide-out keyboard and a touchpad. It uses a VIA C7-M CPU and a 6.5-inch 800x480 LCD with an LED backlight.

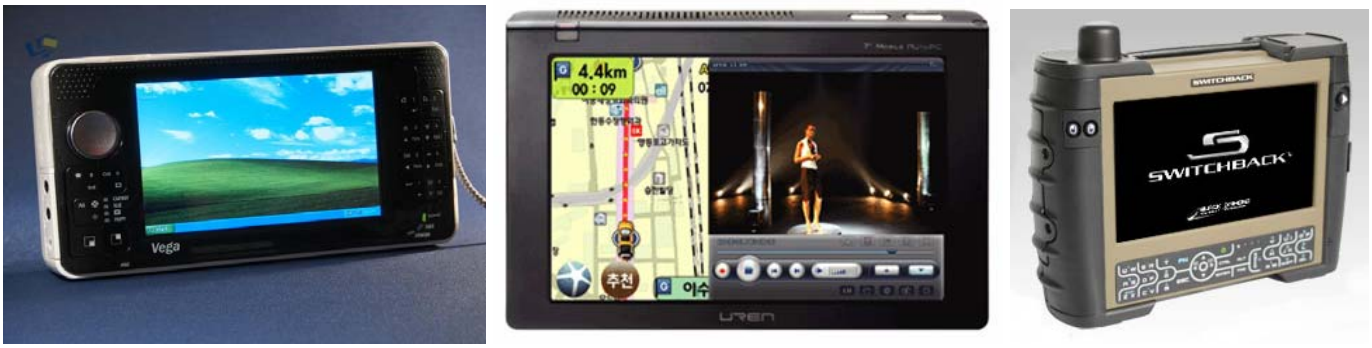


Left image: Quanta's prototype UMPC based on Intel's reference design; center image: Quanta's prototype with the keyboard rotated and opened; right image: The Medion MD RIM 1000, shown with the sliding keyboard extended

Raon Digital introduced the Vega UMPC. This product uses an AMD Geode LX800 CPU running at 500 MHz. AMD acquired the Geode product line from National Semiconductor a couple of years ago. National used the CPU in a variety of interesting mobile products, one of which was the original Origami handheld, shown at Comdex 2001. The Vega runs Windows XP and includes a 4.3-inch 800x480 LCD. When a UMPC gets this small (6.3 x 3.2 x 1.1-inches and 21.5 in^3), it becomes quite usable as a high-end personal media player (PMP). In a way, this puts the product closer to Microsoft's original vision for the UMPC, even though the screen is much smaller than Microsoft was willing to accept.

Uren in Korea announced the V1 Auto PC which will be marketed only in Korea. It's an interesting product because it's designed specifically for automotive use. As can be seen in the photo, there are no buttons on the front; almost everything is controlled through the touch screen.

Black Diamond announced the rugged Switchback UMPC. This interesting product uses a 1GHz Celeron M and a 5.6-inch sunlight-viewable 1024x600 LCD. At 3 pounds and 7.5 x 5.5 x 2.0-inches (82.5 in^3), it's a nice step down from the 10.4-inch rugged Tablet PCs from WalkAbout and Xplore. In addition to its IP67 sealing and 6-foot drop specs, the Switchback has three additional unusual features. First, it can support a second processor board so that it can run both Windows XP and Windows Mobile, either in dual-boot mode or simultaneous operation. Second, it includes a "condensed" membrane QWERTY keyboard on the lower front of the unit. Third, it includes a proprietary clip-on rear expansion module that Black Diamond says can include a selection of more than 20 different functions, from batteries to expansion slots to digital cameras to GPS and beyond. An observation: many mobile computer companies have tried similar schemes over the last 10+ years, but they always seem to founder on the simple fact that the cost of developing, tooling and manufacturing the proprietary module in small quantities is prohibitive (often more costly than the base computer), and none of the module functions are broadly applicable enough to drive large quantities.

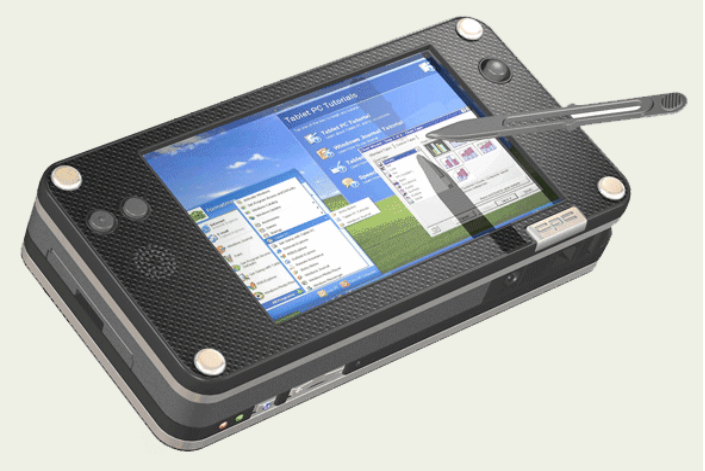


Left image: The Raon Digital Vega; center image: Uren V1 Auto PC; right image: Black Diamond Switchback

DualCor hasn't shipped their cPC UMPC yet, although it was announced at last year's CES and originally scheduled for shipment in March 2006. According to DualCor, they decided not to ship V1.0 due to "changes in the marketplace, technological advances and customer feedback". They are now working on V2.0 of the cPC, targeted for shipment in the spring of 2007. The unique feature of V1.0 was dual processors (Intel XScale and VIA C7-M) that allowed running both Windows XP and Windows Mobile simultaneously; it's unknown how this will change (if at all) in V2.0. V1.0 used a 5.0-inch 800x480 LCD.

Averatec says they have delayed the release of their AHI UMPC until early 2007. The tentative product specs include a 1 GHz Celeron M CPU and a 5.0-inch 800x480 LCD. When Averatec first announced their concept product, the integrated slider keyboard was unique; now, almost a year later, it's becoming much more of a standard feature. Maybe a working model will finally be shown (for the first time) at CES in January.

TabletKiosk is rumored to be introducing a rugged UMPC at CES in January. No additional details are available. Since neither of their current ODM partners (Amtek and ECS) seem likely to build a rugged UMPC, it will be interesting to see with whom they partner for the product.

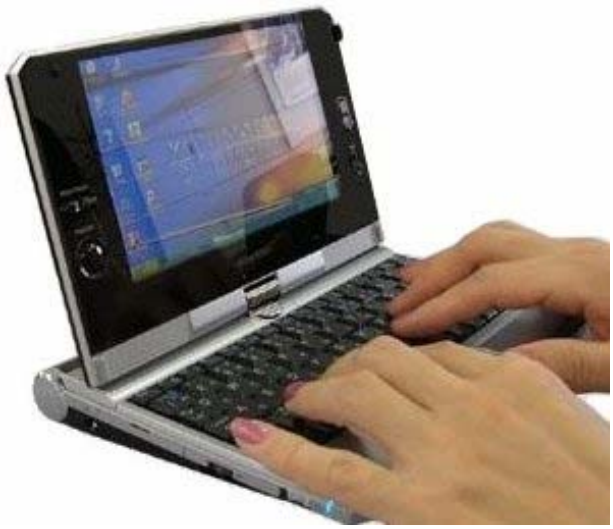
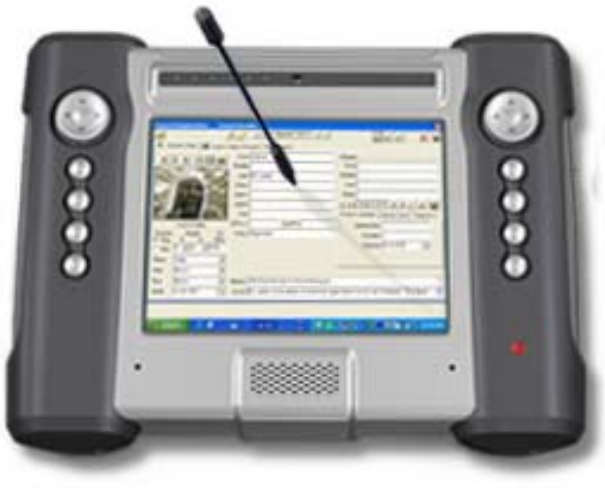



Left image: DualCor cPC; right image: Averatec AHI (believed to be a concept model rather than a working product)

New Mini-PCs ("Near-UMPCs"): There are an increasing number of "mini-PCs" being introduced to the market. Many of these are very close to UMPCs, lacking only a detail such as a touch screen or XP Tablet edition. It's worth taking a look at these products since they could easily be made into UMPCs with only minor changes.

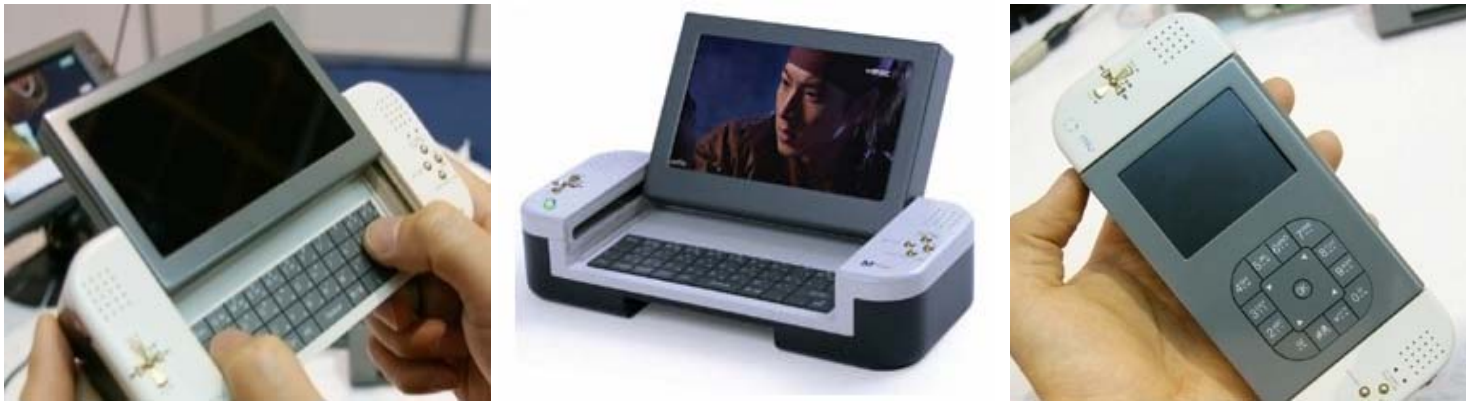
Kohjinsha announced the SA1F00, a very slick convertible mini-PC that sells for only $820 through Conics.net. This 2.1-pound product sports a 7.0-inch 800x480 LCD without a touch screen, which disqualifies it as a UMPC. The product runs Windows XP on an AMD Geode LX800 CPU at 500 MHz; the 77-key internal keyboard includes dual pointing devices; overall size is 8.6 x 6.4 x 1.0-inches (55.1 in^3). This would be a terrific UMPC if it only had a touch screen!

Catcher, Inc. introduced their rugged slate-style Tablet PC. This MIL-STD 810F-compliant product is positioned as an "emergency communication and response unit". With a list price of $6,995, it's clearly targeted at the military market rather than the industrial or consumer markets. Specification-wise, it could be a UMPC except for the fact that its sunlight-readable 6.4-inch LCD is only at 640x480 pixels – which doesn't meet the UMPC's minimum spec of 800x480. The CPU is a respectable 1.4 GHz Pentium M, and there's a raft of built-in features such as fingerprint reader, GPS, two digital cameras, WiFi, Bluetooth, CDMA/GSM cellular, proprietary radio, etc. However, at 10.5 x 7.75 x 2.75-inches (84.1 in^3) and 4.8 (with one battery) it's not really a handheld.

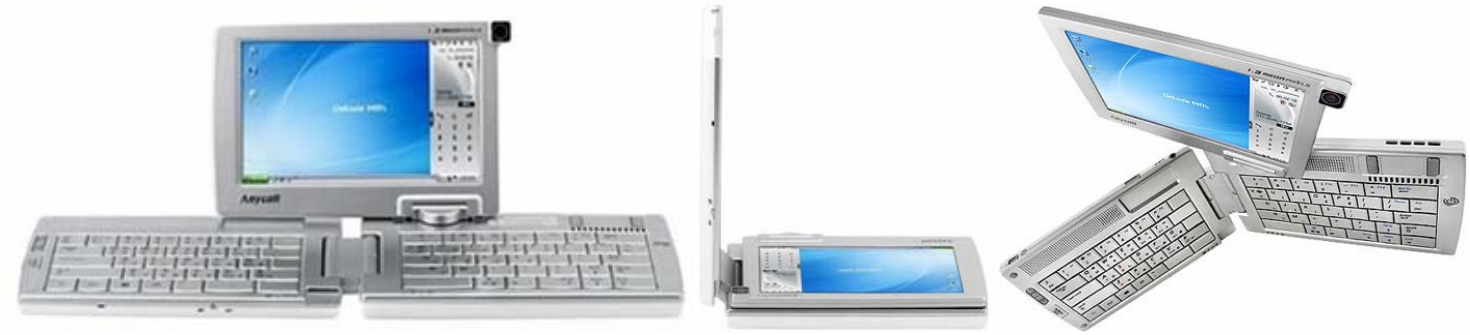
Left image: Kohjinsha SA1F00 convertible mini-PC ; right image Catcher Tablet PC

Mobile Intelligent Ubiquitous (MIU) Technology of Korea announced the M*free "Hybrid Dual Portable Computer", a very odd-looking, brick-like product. No technical specs are available, other than the fact that it runs both Windows XP and Windows Mobile (like DualCor's cPC and Black Diamond's Switchback), so it's unknown if it meets the UMPC specifications. As shown in the photos, the screen can be flipped over to reveal a second, smaller screen and keypad, allowing the product to be used as a mobile phone. There's also a removable module on the back of the product that offers additional functionality such as storage, more interfaces or a digital camera.



*The M*free from MIU Technology (a series of three photos illustrating different aspects of the product)*

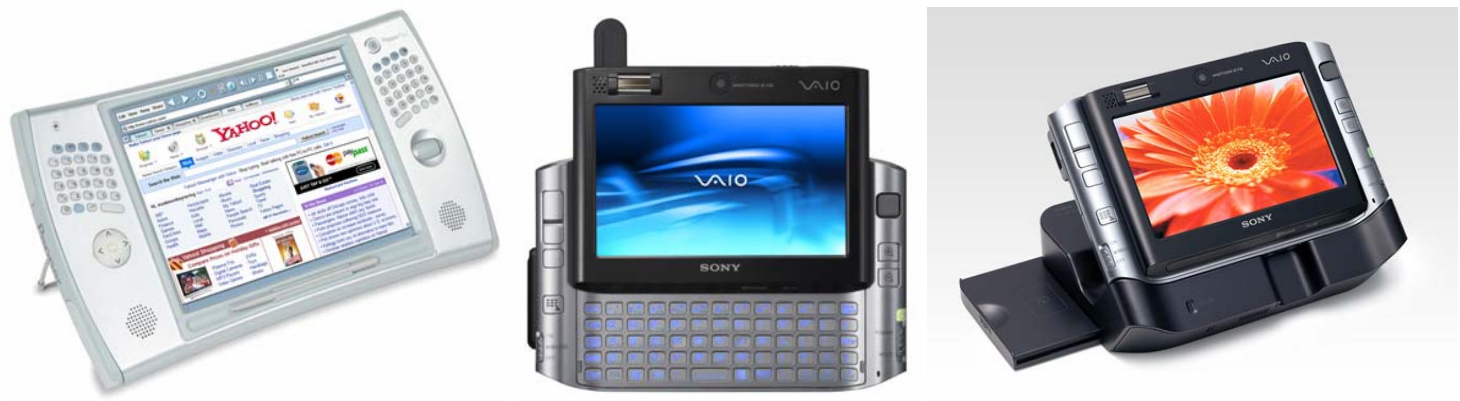
Samsung announced the SPH-P9000, an Origami-style folding mini-PC that will be marketed in Korea starting in the first half of 2007. If the product included a touch screen it could be a UMPC, except that at close to $2,000 it's definitely out of the price range. The product uses a 5.0-inch 800x480 LCD and runs Windows XP on a 1 GHz Transmeta Efficeon CPU with ATI Mobility Radeon graphics. The folded size is 5.6 x 3.6 x 1.2-inches (23.8 in^3); weight is 1.2 pounds. Oddly, the product includes a WiMax handset that plugs into the right side of the keyboard.



The Samsung SPH-P9000 (a series of photos, showing multiple configuration modes)

Pepper Computer/Hanbit America is on its third version of the PepperPad "Web Computer". The product runs Linux on an AMD Geode LX800, so it definitely isn't a UMPC, although it includes a 7.0-inch 800x480 LCD. It's closer in concept to Nokia's 770 Web Tablet. It sounds large at 11.4 x 5.9 x 0.9-inches (60.5 in^3) but at 2.2 pounds it actually feels pretty good in your hands with the thumb-board on each side.

Sony's UX series of "micro PCs" has received a lot of attention during the past year. Technically they're not UMPCs because they don't run XP Tablet. But other than that, they meet the UMPC specs. For example, the very latest top-of-the-line UX-280P includes a 4.5-inch 1024x600 LCD, a 1.2 GHz Intel Core Solo CPU and the latest Intel GMA-950 integrated graphics controller (capable of running Vista Aero!). At 1.2 pounds and 5.9 x 3.7 x 1.4-inches (30.7 in^3), this is an amazing piece of technology – the only problem is that it costs $1,900!



Left image: The PepperPad 3; center image: Sony UX-280P, shown with the sliding screen positioned above the keyboard; right image: Sony UX-280P, shown in a docking cradle

Nokia's 770 Internet Tablet runs a version of Linux so it definitely isn't a UMPC, although it includes a 4.13-inch 800x480 LCD with touch screen. It's meant for web browsing, messaging and audio/video applications. Nokia is rumored to be announcing the next-generation 880 soon. No technical specifications are available yet.

Left image: Nokia's 770 Internet Tablet; right image: Nokia's 880 next-generation Internet Tablet prototype

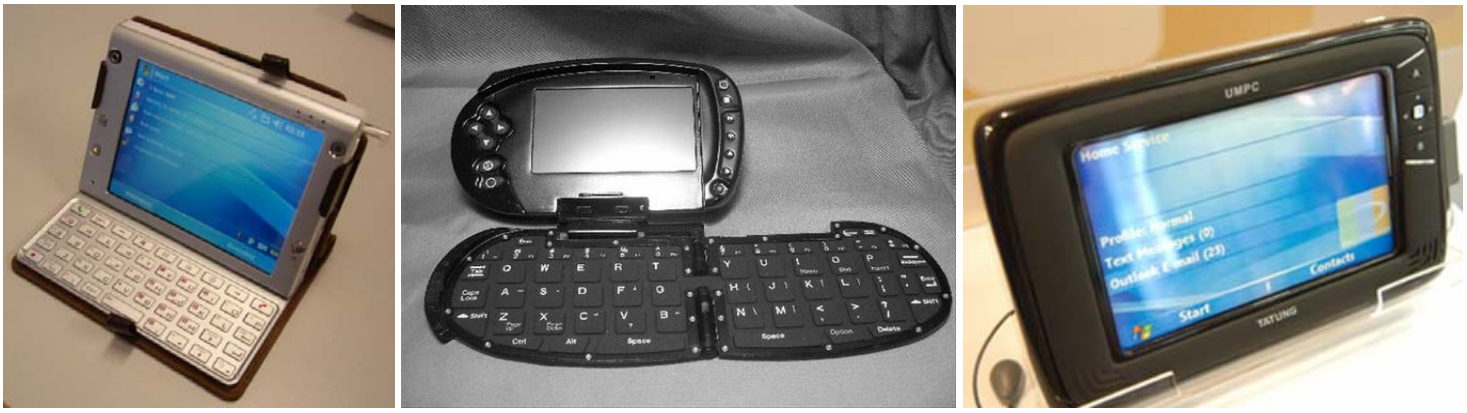
OQO's Model 01+ "ultra personal PC" has been around for a while, so it's about time for a new model to appear. As a leading indicator of this, the Model 01+'s price was reduced to $1,199 in October. Expectations are that a new model may be introduced at CES in January; it's likely that it will use the same 5.o-inch 800x480 transflective LCD, but the brightness will probably be increased.

New Pocket PCs and PDA Phones: The following three products are definitely not UMPCs, since they all run only Windows Mobile. However, the technical media has started applying the term UMPC to high-end Pocket PCs, and their form factor evokes the UMPC to some degree, so it's worth taking a quick look at them.

HTC announced the Athena X7500 "3G UMTS PDA Phone". It runs Windows Mobile on a 520 MHz XScale CPU, so it's definitely not a UMPC. However, like the other product in this section, it could be considered a "crossover" device. Available only in Europe, it includes a 3.6-inch 640x480 LCD with an LED backlight, a tri-band 3G (900/1800/1900) radio, Bluetooth and WLAN.

Seamless WiFi announced the S-Xgen Pocket PC, an interesting Origami-style product with a fold-out keyboard. The product uses a 4.25-inch 470x270 transflective LCD. Considering that UMPCs are supposed to be highly mobile products, it's sad that this is the only product in the entire article (other than the OQO) that uses a transflective screen! The S-Xgen runs Windows Mobile on a 520 MHz XScale CPU, which is typical for high-end Pocket PCs. The final product will be shown for the first time at CES in January.

Tatung showed a product labeled as a UMPC but running Windows Mobile at Computex 2006. No technical specs are available.



Left image: HTC Athena X7500, top view; center image: Seamless WiFi's S-XGen Windows Mobile product; right image: Tatung Windows-Mobile UMPC

Other Hardware and Software: Fujitsu seems to be making progress on their folding UMPC/laptop concept. T3 Magazine has video showing the current status: http://www.t3.co.uk/news/247/general/general/folding_laptop_filmed

Finally, one sign of the relative health of the UMPC ecosystem is the increasing number of available accessories such as extended batteries, bump cases, wireless keyboards, car docks and GPS dongles. There is also beginning to be some UMPC-optimized software available such as a Slingbox UMPC Player skin, Streets & Trips 2007 for the UMPC, the UltraSync UMPC-to-PC synchronization application and the New York Times Reader.

The UMPC world is surprisingly vigorous, isn't it?

All known UMPC and "Near-UMPC" manufacturers and marketers as of 12/31/06

Company	Country	Product	Source	URL
UMPCs as of May 2006				
Amtek	Taiwan	T700	Self	http://www.amtek.com.tw
Asus	Taiwan	R2H	Self	http://www.asus.com
Daewoo Lucoms	Korea	Solo M1	ECS	http://www.lucoms.co.kr
Elitegroup Computer Systems (ECS)	Taiwan	H70	Self	http://www.ecs.com.tw
Founder	China	Mininote	ECS	http://www.foundertech.com
It's Label	France	Origami	Amtek	http://www.itslabel.com
PaceBlade	Netherlands	EasyBook P7	Amtek	http://www.paceblade.nl
PaceBlade Japan (PBJ)	Japan	SmartCaddie	Amtek	http://www.pbj-inc.co.jp
Samsung	Korea	Q1	Self	http://www.samsung.com
TabletKiosk	USA	eo v7110	Amtek	http://www.tabletkiosk.com
New UMPCs Since May 2006				
AgoPC	USA	Ago7	Amtek	http://www.agopc.com
Arima	Taiwan	UM650UV1	Self	http://www.arima.com.tw
Averatec	USA	AHI	FIC?	http://www.averatec.com
Azentek	USA	GB-810	Amtek	http://www.azentek.com
Black Diamond	USA	Switchback	Self	http://www.bdatech.com
DualCor	USA	cPC	Self	http://www.dualcor.com
Medion	Germany	MD RIM 1000	Arima	http://www.medion.com

New UMPCs Since May 2006 (continued)				
Pioneer Computers	Australia	UMPC 700 UMPC H700	Amtek ECS	http://www.pioneercomputers.com.au
Quanta	Taiwan	(Unnamed)	Self	http://www.quanta.com.tw
Raon Digital	Korea	Vega	Self	http://www.raondigital.com
Samsung	Korea	Q1P & Q1b	Self	http://www.samsung.com
TabletKiosk	USA	eo i7210	ECS	http://www.tabletkiosk.com
Ubiquio	??	701	Amtek	http://www.ubiquio.com
Uren	Korea	Auto PC	Self	http://www.uren.co.kr
Mini-PCs (not UMPCs)				
Catcher	USA	Catcher	Self	http://www.catcherinc.com
Kohjinsha	Japan	SA1F00	Self	http://www.kohjinsha.com
MIU Technology	Korea	M*free	Self	http://miubit.com
Nokia	Finland	770	Self	http://www.nokiausa.com
OQO	USA	Model 01+	Self	http://www.oqo.com
Pepper Computer/ Hanbit America	USA	PepperPad 3	Self	http://www.pepper.com
Samsung	Korea	SPH-P9000	Self	http://www.samsung.com
Sony	Japan	UX Series	Self	http://b2b.sony.com
Windows Mobile Devices				
High Tech Computer (HTC)	Taiwan	Athena X7500	Self	http://www.htc.com.tw
Seamless WiFi	USA	S-XGen	Self	http://www.slwf.net
Tatung	Taiwan	(Unnamed)	Self	http://www.tatung.com
Specialty Retailers				
Dynamism	USA	N/A	N/A	http://www.dynamism.com
Conics	Australia	N/A	N/A	http://www.conics.net

Screen sizes and resolutions mentioned in this UMPC article

While average screen size for the devices mentioned in this report is relatively small (only 5.13-inches), the UMPC category of products rates high when it comes to pixel density, averaging 188 pixels per inch.

Screen diagonal	Resolution	Pixels	PPI
3.6”	640x480	307,200	222
4.13”	800x480	384,000	228
4.25”	470x270	126,900	124
4.3”	800x480	384,000	219
4.5”	1024x600	614,400	284
5.0”	800x480	384,000	189
5.6”	1024x600	614,400	212
6.4”	640x480	307,200	125
6.5”	800x480	384,000	145
7.0”	800x480	384,000	135
Average = 5.13”		**389,010**	**188**

UMPC enthusiast websites

UMPC Website	URL
CarryPad	http://www.carrypad.com
Engadget	http://www.engadget.com
Gizmodo	http://www.gizmodo.com
Gotta Be Mobile	http://www.gottabemobile.com
Handtops	http://www.handtops.com
Incremental Blogger	http://journals.tuxreports.com/lch/
Intel UMPC Community	http://www.umpc.com
Intel UMPC Home	http://ww.intel.com/design/mobile/platform/umpc.htm
JK On The Run	http://jkontherun.blogs.com/jkontherun/
Microsoft UMPC Home	http://www.microsoft.com/windowsxp/umpc/
Mobile Magazine	http://www.mobilemag.com
Mobile Whack	http://www.mobilewhack.com
Only UMPC	http://onlyumpc.com
Origami Portal	http://www.origamiportal.com
Origami Project	http://origamiproject.com
Redmond Gadgets	http://www.redmondgadgets.com
SlashGear	http://www.slashgear.com
UberTablet	http://ubertablet.blogspot.com
Ultra Mobile Blog	http://ultramobileblog.com
Ultra Mobile Life	http://www.ultramobilelife.com
Ultra Mobile PC Tips	http://www.ultramobilepc-tips.blogspot.com
Ultra Mobile PCs	http://www.ultramobilepcs.com
Ultra-Mobile PCs	http://www.ultra-mobilepcs.com
Ultranauts	http://www.ultranauts.com
UMPC Buzz	http://www.umpcbuzz.com
UMPC Focus	http://www.umpcfocus.com
UMPC Fun	http://www.umpcfun.com
UMPC Scene	http://www.umpcscene.com
UMPC Site	http://www.umpcsite.com