



Pen Computing
EDITOR'S CHOICE
"Flashlight-style" handheld

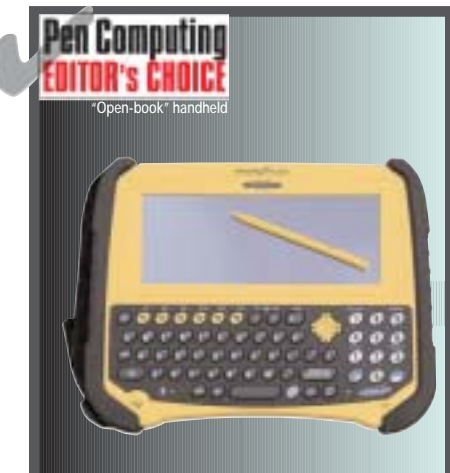
Casio
DT-X10

List price: NA
Contact: www.casio.com

Based on the modern and powerful Windows CE .NET, the Casio DT-X10 is a rugged industrial handheld terminal rather than a Pocket PC in a tougher housing. It has a small numeric keypad for rapid data entry as well as some function and navigation keys. Its speedy XScale processor and large battery combine to make the DT-X10 a powerful and flexible tool that can be used for a wide variety of industrial and business applications. The device shines in the communication arena, offering both integrated Bluetooth and 802.11b wireless LAN. There is also a built-in high-performance CMOS imager capable of reading one and two-dimensional codes as well as OCR. And internal PC Card slot offers additional expansion, and there is a separate CF Card expansion option. The 3.5-inch transmissive display uses a special coating for outdoor readability.

SPECIFICATIONS

Form-factor	Flashlight-style handheld
Market(s)	Any industrial
Processor/Speed	Intel PXA250/300 MHz
OS	Microsoft Windows CE .NET
RAM/ROM	32MB/32MB
Card slots	1 PC Card Type II
Display type	Coated transmissive color TFT
Display size/res	3.5-inch/240 x 320
Digitizer/pens	touch/1
Keyboard/keys	23-key keypad
Housing	plastic/rubber
Operating temp.	-20 to 50 degree C
Sealing	IP54/IP64
Shock	4 feet to plastic tile over concrete
Dimensions and volume	3.2 x 8.7 x 1.8
Weight	14 ounces
Power	3,400 mAh Li-Ion (8 hrs)
Interface	Bluetooth, IR, USB, 802.11b
Interface	1/4-inch CMOS Imager, audio, power
Options	CF extension slot, extended battery
Options	Vehicle-mount charger, chargers



Pen Computing
EDITOR'S CHOICE
"Open-book" handheld

DAP Technologies
Microflex CE8640

List price: NA
Contact: www.daptech.com

DAP Technologies' MicroFlex 8640 is a 9 x 7 x 2 inch block of ergonomically sculpted plastic that feels just about indestructible. Technically speaking it is a Windows CE device running CE 3.0 on a 206 MHz StrongARM processor. It has a wide-format 640 x 240 transfective color display that's very readable indoors and outdoors. The 8640 also has a full, albeit small, QWERTY keyboard. Two internal Type II PC Card slots provide expansion for internal radios and other add-ons. The battery is a beefy 15 Watt Hour Li-Ion unit good for at least a full shift. The 8640 comes with 32 or 64MB of RAM plus two 16MB NAND Flash storage units. The device carries an impressive IP67 rating which means it is almost completely sealed and impervious to the elements. The 8640 is complemented by a choice of charging and communications docks.

SPECIFICATIONS

Form-factor	Handheld PC
Market(s)	Heavy duty industrial
Processor/Speed	StrongARM SA-1110/206 MHz
OS	Microsoft Windows CE 3.0
RAM/ROM	32-64MB/32-128MB
Card slots	2 Type II PC Card
Display type	Transflective color LCD
Display size/res	6.5-inch/640 x 240
Digitizer/pens	touch/1
Keyboard/keys	64-key QWERTY, 65% scale
Housing	plastic/rubber
Operating temp.	-4 to 122 degree F
Sealing	IP67
Shock	4 feet drop
Dimensions and volume	9.1 x 7.3 x 2.0
Weight	2.4 lbs.
Power	Li-Ion ("2-3 working days")
Interface	Serial, IrDA
Interface	RJ45, USB, additional serial via dock
Options	Integrated laser, RFID
Options	Printer, scanner, cradles



Pen Computing
EDITOR'S CHOICE
Advanced Industrial PDA

Intermec
700 Series

List price: starting at US\$1,395
Contact: www.intermec.com

The very successful 700 Series is Intermec's state-of-the-art handheld mobile computer. Now available with a 400 MHz XScale processor and the powerful Pocket PC 2003 operating environment, the 700 Series is clad in a very rough, rugged body and has plenty of expansion capability (including many radio types and Bluetooth) and peripheral options to address the realities of harsh environment and industrial markets. A programmable 18-key keypad offers a wealth of functionality. A CF Card slot and an internal PC Card slot are used for a variety of wireless radio options. The 700 Series looks and feels rock-solid. Its ruggedness and the integrated keypad make it larger and heavier than a consumer market PDA (or the Intermec 600) but it is still handy enough to be put in a pocket. The mobile computing equivalent of a homerun.

SPECIFICATIONS

Form-factor	Rugged PDA
Market(s)	Mobile, retail, industrial
Processor/Speed	Intel XScale PXA255/400 MHz
OS	Microsoft Pocket PC 2003
RAM/ROM	64 - 128 MB/32MB Flash
Card slots	1 Type I PC Card and 1 Type II CF
Display type	Frontlit reflective TFT
Display size/res	3.8-inch/240 x 320
Digitizer/pens	touch/1
Keyboard/keys	18 keys
Housing	Plastic with metal inserts
Operating temp.	-4 to 140 degree F
Sealing	IP64
Shock	26 times 5 feet to concrete
Dimensions and volume	3.5 x 7.25 x 1.5
Weight	16 ounces
Power	14.4 WHr Li-Ion ("6-10 hrs")
Interface	RS232, IrDA, power
Interface	LAN, USB
Options	Modem, Bluetooth, WAN, RF
Options	Lasers and imagers, printers, docks



Pen Computing
EDITOR'S CHOICE
Handheld PC

NEC
MobilePro 900
List price: US\$899
Contact: www.necsam.com

The NEC MobilePro 900's lineage goes all the way back to the first Windows CE-based HPCs in late 1996, which means NEC has a lot of experience with this form factor. More directly, the 900 goes back to the ground-breaking "large form factor" Mobile Pro 750 which then became the 770 (new design) and 780 (faster processor, scroll wheel) and finally the 790 with Handheld PC 2000 and extra Flash for custom applications. The 900 gets a state-of-the-art 400MHz XScale chip, and yet more memory and flexibility. With the MobilePro 900 you thus get a very mature handheld PC with an almost full-size keyboard, a large display, good battery life, good expansion, and the mature Handheld PC 2000 software. And with the demise of HP's Jornada 720, the best thing about the MP900 is that, like Disney's Tigger, it is the only one.

SPECIFICATIONS

Form-factor	Handheld PC
Market(s)	Various mobile field applications
Processor/Speed	Intel PXA 255/400 MHz
OS	Windows Handheld PC 2000
RAM/ROM	64MB/32MB Flash + 32MB
Card slots	1 Type II PC Card, 1 Type II CF Card
Display type	STN color LCD
Display size/res	8.1"/640 x 240
Digitizer/pens	touch/1
Keyboard/keys	78 keys, 92%-scale
Housing	Plastic
Operating temp.	-4 to 122 degree F
Sealing	IP53
Shock	4 feet to concrete
Dimensions and volume	9.7 x 5.1 x 1.2
Weight	1.8 pound
Power	Li-Ion ("8 hours")
Interface	2 USB 1.1, RS232, VGA
Interface	IrDA, RJ11, audio, power
Options	Large battery, case, charging station
Options	Serial cable, AC adapter



Pen Computing
EDITOR'S CHOICE
Advanced rugged PDA

Panasonic
Toughbook CF-P1
List price: US\$1,541
Contact: www.panasonic.com/toughbook

Panasonic's successful Toughbook line of reliable, ruggedized notebook computers includes a hardened PDA, the Toughbook 01. The 01 merges complete Pocket PC functionality with a ruggedized case and a 38-key RIM-style mini-keyboard. Features include the 206MHz StrongARM processor, a reflective color display, a MMC/SD card slot and an internal CF Card slot. The RIM-style keyboard allows for rapid data entry in situations where stylus/onscreen data entry are not appropriate. The moisture and shock resistant magnesium housing provides extra protection, and Panasonic also offers a variety of integrated wireless and data collection options. The Toughbook 01 is larger than a standard consumer class PDA, but still small and handy enough to carry in a pocket. A very worthwhile addition to the Toughbook line.

SPECIFICATIONS

Form-factor	Rugged PDA
Market(s)	Any industrial
Processor/Speed	StrongARM SA-1110/206 MHz
OS	Windows CE 3.0 or Pocket PC 2002
RAM/ROM	32 or 64MB/32MB Flash
Card slots	1 CF Card Type II, 1 SD/MMC Card
Display type	Frontlit reflective TFT
Display size/res	3.5-inch/240 x 320
Digitizer/pens	touch/1
Keyboard/keys	backlit 38-key QWERTY
Housing	Magnesium
Operating temp.	-4 to 122 F
Sealing	"dust and moisture resistant"
Shock	"drop shock-resistant"
Dimensions and volume	3.9 x 6.8 x 1.6
Weight	1.0 pounds
Power	10.4 WH (1.4 AH/7.4V) Li-Ion (8+ hrs)
Interface	IrDA, expansion connector
Interface	Audio in/out, power
Options	Cradle, cables, barcode scanner
Options	GPS, USB, holster, chargers, RF



Pen Computing
EDITOR'S CHOICE
Special Purpose PDA

Trimble
GeoExplorer CE Series
List price: NA
Contact: www.trimble.com

The GeoExplorer CE Series from GPS (Global Positioning Systems) specialist Trimble is a unique device that combines a Windows CE-based with an integrated Trimble GPS receiver. Trimble offers different models. The GeoXM brings real-time corrected GPS info with two to five meter accuracy into GIS applications whereas the GeoXT adds a submeter-accuracy receiver and multipath rejection technology. USB and serial support modules provide communication capability for wired and wireless data transfer. The display has an anti-glare coating and an extra-strong backlight. The heavily ruggedized GeoExplorer has its own GPS controller and connector software and can run GIS software from ESRI, Trimble and others. The GeoExplorer comes with no less than 512MB of Flash, enough even for large databases and maps.

SPECIFICATIONS

Form-factor	Rugged PDA
Market(s)	GIS data collection and maintenance
Processor/Speed	StrongARM SA-1110/206 MHz
OS	Windows CE 3.0
RAM/ROM	64MB/512MB Flash
Card slots	1 Type II PC Card, 1 CF Card
Display type	Transmissive anti-glare color LCD
Display size/res	3.8"/240 x 320
Digitizer/pens	touch/1
Keyboard/keys	onscreen
Housing	PC/ABS Plastic
Operating temp.	14 to 122 degree F
Sealing	IP54
Shock	NA
Dimensions and volume	3.9 x 8.5 x 3.0
Weight	1.6 pound
Power	21 WH Li-Ion ("up to 10 hrs")
Interface	GPS, USB
Interface	Audio in/out, power
Options	Serial clip, antennas, hard case
Options	Vehicle power, GPS software, cameras



Pen Computing
EDITOR'S CHOICE

Rugged Tablet PC slate

Intermec CT60 Rugged Tablet PC

List price: starting at US\$4,850
Contact: www.intermec.com

Designed by ruggedness experts WalkAbout Computer (which sells this model as the WalkAbout XRT), the Intermec CT60 compares to consumer-grade Tablet PCs the way a Hummer does to a family sedan: both drive, but the Hummer is designed to take extreme punishment under the harshest conditions. Same for the CT60. Its case is milled from a solid block of aluminum. It carries a IP67 rating, which means it is almost completely sealed from the elements in every respect. Since Tablet PCs like the CT60 are likely to be used outdoors, Intermec offers a version with a transfective display that is viewable both indoors and outdoors. Due to the tight sealing, the CT60 doesn't have many onboard ports, so you'll need one of the several docks. We'd also recommend getting the CT60 with two rather than just one battery.

SPECIFICATIONS

Form-factor	Slate
Processor/Speed	Mobile Pentium III/800 MHz
Chipset	Intel 830MG
OS	Microsoft Windows XP Tablet PC Edition
Standard/Max RAM	256MB/512MB
Disk	20 or 40 GB
Card slots	2 PC Card Type II
Display type	Transmissive or transfective TFT
Display size/res	10.4-inch/800x600
Color depth	16.7 million
Digitizer/pens	Wacom/1
Keyboard/keys	Optional external
Ruggedness	ultra-rugged (IP67)
Housing	Milled aluminum
Dimensions and volume	10.6 x 8.25 x 1.6
Weight	4.5 lbs.
Power	Dual 21 WHr Li-Ion ("4 hour typical")
Interface	1 USB external, 2 USB internal
Interface	other ports via dock
Options	Office and vehicle docks, carry cases
Options	Port replicator, CDPD, GPS, GSM, GPRS



Pen Computing
EDITOR'S CHOICE

Tablet PC slate

Motion Computing M1300

List price: starting at US\$2,099
Contact: www.motioncomputing.com

Motion Computing is a new company formed by two former Dell executives specifically to build Tablet PCs. Both their original M1200 and the new M1300 are sleek, elegant slates that can also be used in the office via a cleverly designed docking station that allows using the Motion slate both in landscape and portrait mode. Perhaps the biggest attraction of the M1200/1300 is its 12.1-inch display that gives it an edge over competing slates that all use 10.4-inch screens. The difference between the M1200 and M1300 is that the latter uses Intel's Centrino technology, which means a bit more speed and battery life. The M1300 also comes with more base memory and USB 2.0. Even the US\$2,099 base model comes with wireless, a desktop stand, and a keyboard--great deal. Available from Motion, Gateway, and Dell.

SPECIFICATIONS

Form-factor	Slate
Processor/Speed	Intel Pentium M/1.0 GHz
Chipset	Intel 855
OS	Microsoft Windows XP Tablet PC Edition
Standard/Max RAM	512MB/1024MB
Disk	up to 40GB
Card slots	1 PC Card Type II
Display type	Transmissive TFT
Display size/res	12.1-inch/1024x768
Color depth	16.7 million
Digitizer/pens	Wacom/1
Keyboard/keys	Opt. external, 88 key, 100%
Ruggedness	standard
Housing	Magnesium-alloy
Dimensions and volume	11.7 x 9.4 x 0.9
Weight	3.3 lbs.
Power	11.1 V 3.6 AH Li-Ion
Interface	2 USB 2.0, RJ11, RJ45, IrDA
Interface	IEEE1394, video, audio, 802.11b
Options	Dock, desktop stand, carry cases
Options	CD-ROM, DVD/CD-RW, adapters



Pen Computing
EDITOR'S CHOICE

Toshiba Portege 3500

List price: starting at US\$2,199
Contact: global.acer.com

Anyone who wants Tablet PC functionality without giving up the comfort and familiarity of a conventional notebook should check out the Toshiba Portege 3500. The Portege looks and feels just like a standard ultra-light laptop. Its 12.1-inch display is larger and its 1.33GHz Pentium III processor faster than anything available from the competition. It has a full size keyboard, a tough magnesium housing, and even a SD/MMC card slot in addition to its PC Card adapter. A sturdy, well-engineered hinge lets you swivel the display and fold it flat onto the keyboard, turning the Portege into a slate. Among the drawbacks: significant heat build-up, screen flexing when you tap the display with the pen, and we'd like to see an internal optical drive in a device this size. Else, it is hard to beat Toshiba's excellent and versatile notebook convertible.

SPECIFICATIONS

Form-factor	Convertible notebook
Processor/Speed	Mobile Pentium III/1.33 GHz
Chipset	Trident Cyber Aladdin-T
OS	Microsoft Windows XP Tablet PC Edition
Standard/Max RAM	256MB/1024MB
Disk	20/30/40/60 GB
Card slots	1 PC Card Type II, 1 SD Card
Display type	Transmissive TFT
Display size/res	12.1-inch/1024x768
Color depth	16.7 million
Digitizer/pens	Wacom/1
Keyboard/keys	Integrated, 84 key, 100%
Ruggedness	standard
Housing	Magnesium outer/plastic inner
Dimensions and volume	11.5 x 9.25 x 1.3
Weight	4.1 lbs.
Power	10.8 V 3.6 AH Li-Ion ("3.5 hrs.")
Interface	2 USB 2.0, RJ11, RJ45, IrDA
Interface	audio, video, 802.11b
Options	CD-ROM, DVD, DVD/CD-RW
Options	Battery charger, extra pens



Itronix GoBook II

List price: US\$4,495
Contact: www.itronix.com

Itronix' GoBook II builds on the initial GoBook (still available) and the company's older line of rugged X-C "Cross Country" notebooks. The GoBook II is improved in many ways, and considerably more powerful with its 1.7GHz mobile Pentium 4. Its magnesium housing, tight seals, and generous use of shock mounting make the Go-Book II a rugged notebook suitable for almost any environment. An expansion bay can accommodate a number of drive options or a second battery. A phosphorescent keyboard glows white in the night without using power. The anti-glare coated 12.1-inch display provides a degree of outdoor readability, and there is a transreflective option. The GoBook is built for wireless communication and can accommodate a variety of radio modems. An excellent combination of ruggedness, expandability, and performance.

SPECIFICATIONS

Form-factor	Rugged notebook
Market(s)	Test and measurement markets
Processor/Speed	Intel Pentium 4M/1.7GHz
OS	Microsoft Windows XP Professional
RAM/Storage	128-1024MB/20-30 HD
Card slots	1 PC Card Type II/III
Display type	Color-vue transmissive TFT
Display size/res	12.1"/1024 x 768 XGA
Digitizer/pens	touch/1
Keyboard	87 key waterproof, full-scale
Housing	Magnesium die-cast
Operating temp.	-10 to 140 degree F
Sealing	IP54
Shock	26 x 3 feet to concrete
Dimensions	12.0 x 9.8 x 2.4
Weight	7.9 pounds
Power	67 Whr Li-Ion
Interface	RS232, IrDA, PS/2, USB, dock
Interface	audio in/out, RJ11, RJ45, media bay
Options	HD/FD/CD-ROM/DVD, Bluetooth
Options	12.1" transfect. display, various RF



Panasonic Toughbook CF-T1

List price: US\$2,355
Contact: www.panasonic.com/toughbook

The Toughbook T1 is a compact, ultra-light notebook computer that weighs just 2.4 pounds. That's significantly lighter than even Tablet PC slates. Handsomely designed, the T1 has the look and feel of Panasonic's full-size Toughbooks, only downsized. Its 866MHz Mobile Pentium III processor and its bright 12.1-inch display make it a tool for real work. Despite its light weight, the Toughbook T1 feels sturdy and very well made, and it should as Panasonic uses the same materials and design principles as in its big, rugged notebooks. We liked the T1's full-size keyboard, very responsive touchpad, and almost total lack of annoying heat build-up, but missed a touchscreen option. Another plus: a large power pack provides excellent battery life. We got up to four hours. And the SD Card lets you store lots of data on a tiny card.

SPECIFICATIONS

Form-factor	Durable ultralight notebook
Market(s)	Professionals and business
Processor/Speed	Mobile Pentium III/866MHz
OS	Microsoft Windows XP Professional
RAM/Storage	256-512MB/40 HD
Card slots	1 PC Card Type II, 1 CF Card, 1 SD Card
Display type	Anti-Glare transmissive TFT
Display size/res	12.1"/1024 x 768 XGA
Digitizer/pens	NA
Keyboard	85 key, full-scale
Housing	Magnesium alloy, stainless steel hinges
Operating temp.	NA
Sealing	NA
Shock	NA
Dimensions	10.6 x 8.3 x 1.0
Weight	2.4 pounds
Power	32.6 Whr (4.4AH/7.4V) Li-Ion (around 4 hrs)
Interface	RJ45, RJ11, 2 USB 2.0
Interface	audio in/out, video
Options	USB CD-RW/DVD drive, 802.11b
Options	External USB floppy



Panasonic Toughbook CF-28

List price: US\$4,610
Contact: www.panasonic.com/toughbook

The Toughbook CF-28 is Panasonic's most popular machine for field computing in harsh environments. With an all-magnesium housing, the CF-28 sports excellent industrial design and, after the latest electronics update, most of the computing power of a state-of-the-art notebook without the durability headaches that come with standard consumer products. Now also available with a 12.1-inch SVGA transreflective display for superior outdoor readability, the CF-28 is a very capable and flexible performer with a range of expansion options to suit any need. It can be ordered pre-configured for several wireless data networks including the CDPD, GSM, GPRS and WiFi standards. The multi-purpose media bay, port panel, and PC Card bay are all protected under sealed doors; this notebook does not need a case, it is one.

SPECIFICATIONS

Form-factor	Rugged notebook
Market(s)	Government, police, military, utilities
Processor/Speed	Pentium III-M/1.0 GHz
OS	Microsoft Windows 2000/XP
RAM/Storage	256-512MB/30GB HD
Card slots	2 Type II PC Card
Display type	Transflective or transmissive TFT
Display size/res	13.3"/1024 x 768 XGA
Digitizer/pens	touch/1*
Keyboard	Backlit* 87-key, 100%-scale
Housing	Magnesium alloy
Operating temp.	-20 to 140 degree F
Sealing	IP54
Shock	26 x 3 feet drop to concrete
Dimensions	11.9 x 10.8 x 2.5
Weight	9.3 pounds
Power	60 Whr (5.4, 11.1V) Li-Ion ("4 hours")
Interface	RS232, Parallel, USB, PS/2, RJ45
Interface	IrDA, audio in/out, RJ11, power
Options	Docks, 12.1" transflective SVGA, RF
Options	Carry bag, 2nd battery, CD/DVD/CD-RW



Pen Computing
EDITOR'S CHOICE

Innovative technology

Panasonic Toughbook 07

List price: inquire
Contact: www.panasonic.com/toughbook

When evaluating the Panasonic 07 you need to forget everything you know about mobile computers because this one is different. The 07 consists of a "computer" that's about the size and weight of a standard brick, a dock that offers just about any port and interface you can think off, and a wirelessly connected 8.4-inch transfective TFT display. The idea is that you mount the dock with the computer in a car or a warehouse and then roam around with just the 1.5 pound tablet to carry. The tablet remains connected to the computer via an 802.11b wireless link and acts just as if it had the computer built in. If you need to roam further from the base, you can simply stick the PC "brick" into a holster-vest that also has a pocket for the display, and the whole system becomes a wearable computer. Excellent idea, and it works great.

SPECIFICATIONS

Form-factor	Slate
Market(s)	Safety, warehouse, hospitality
Processor/Speed	Intel Pentium M/900 MHz
OS	Microsoft Windows 2000
RAM/ROM	128 to 256 MB/ 5 GB HD
Card slots	1 PC Card Type II
Display type	Transfective TFT
Display size/res	8.4-inch/800 x 600 SVGA
Digitizer/pens	touch/1
Keyboard/keys	Opt. external
Housing	Magnesium-alloy
Operating temp.	14 to 140 F
Sealing	IP67
Shock	26 x 4 feet to concrete
Dimensions and volume	7.9 x 3.6 x 2.1
Weight	2.1 lbs. (display 1.5 lbs.)
Power	13.3 WH (1.8 AH/7.4V) Li-Ion ("up to 4 hrs.")
Interface	Dock, RF
Interface	RS232, USB, 802.11b
Options	Port replicator, wireless, dock
Options	CD-ROM, vehicle mount



Pen Computing
EDITOR'S CHOICE

Rugged pen tablet

Xplore Technologies GeneSys Maximus/Pro

List price: inquire
Contact: www.xplorettech.com

The Maximus is the flagship of Xplore Technologies' GeneSys line. Despite a larger 12.1-inch display compared to the GeneSys II, the Maximus has the same proportions and weighs just five pounds. Overall design and construction is trust-inspiring, and downright tanklike. The magnesium case has absolutely no flex and combined with massive rubber bumpers, protects the large XGA color display. A transfective SVGA 12.1-inch display is also available. Onboard connectivity is limited to IR and USB, but the Maximus offers excellent I/O via some of the best (and most secure) docking systems in the business. While the resistive passive digitizer precludes the use of the XP Tablet PC Edition, this is not a big issue (yet) in the Maximus' target markets where a touch screen and the rock-solid Windows 2000 may actually be preferred.

SPECIFICATIONS

Form-factor	Rugged Slate
Market(s)	Utilities, government, military
Processor/Speed	Intel Pentium III/700 MHz
OS	Microsoft Windows 2000 or XP
RAM/ROM	128 to 512MB/up to 40GB HD
Card slots	2 Type II PC Card internal
Display type	Transmissive or transfective* TFT
Display size/res	12.1-inch/1024 x 768 XGA
Digitizer/pens	touch/1
Keyboard/keys	Optional external
Housing	Magnesium alloy with bumpers
Operating temp.	-4 to 140 F
Sealing	IP54
Shock	20g, 11ms, sawtooth wave
Dimensions and volume	12.0 x 9.0 x 1.5
Weight	5.0 lbs.
Power	Li-Ion ("up to 6 hrs.")
Interface	IrDA, 2 USB
Interface	XPander, 802.11b*
Options	XPander and Quick Release docks
Options	FDD, CD-ROM, GPS, RF, lock