







# Semi-rugged computers for the outside world



Semi-rugged Toughbook® Models						
Model Name	Toughbook 48	Toughbook 50	Toughbook 72	Toughbook 73	Toughbook R1	Toughbook T1
CPU	<ul style="list-style-type: none"> <li>Intel® Pentium® M Processor 1.4GHz featuring Enhanced Intel® SpeedStep™ technology</li> <li>1MB on-die L2 cache</li> </ul>	<ul style="list-style-type: none"> <li>Mobile Intel® Pentium® 4 Processor-M 2.2GHz or 2.0GHz featuring Enhanced Intel® SpeedStep™ technology</li> <li>512KB on-die L2 cache</li> </ul>	<ul style="list-style-type: none"> <li>Mobile Intel® Pentium® 4 Processor-M 1.8GHz featuring Enhanced Intel® SpeedStep™ technology</li> <li>512KB on-die L2 cache</li> </ul>	<ul style="list-style-type: none"> <li>Intel® Pentium® M Processor 1.4GHz</li> <li>1GB on-die L2 cache</li> </ul>	<ul style="list-style-type: none"> <li>Ultra Low Voltage Mobile Intel® Pentium® III Processor-M 866MHz</li> <li>512KB on-die L2 cache</li> </ul>	<ul style="list-style-type: none"> <li>Ultra Low Voltage Mobile Intel® Pentium® III Processor-M 866MHz</li> <li>512KB on-die L2 cache</li> </ul>
Storage & Memory	<ul style="list-style-type: none"> <li>256MB SDRAM standard, expandable to 768MB (PC-2100 memory is required)</li> <li>Intel® Pentium® M Processor 1.4GHz                             <ul style="list-style-type: none"> <li>40GB HDD (shock-mounted &amp; easily removable)</li> <li>Integrated 1.44MB FDD standard</li> <li>Combo Drive (DVD-ROM*/CD-RW**) Standard</li> </ul> </li> <li>Optional SmartCard Reader</li> <li>Optional DVD Multi Drive</li> </ul>	<ul style="list-style-type: none"> <li>With 2.2GHz Processor:                             <ul style="list-style-type: none"> <li>512MB SDRAM standard, expandable to 1GB (PC-2100 memory is required)</li> <li>60GB HDD (shock-mounted &amp; easily removable)</li> <li>Integrated 1.44MB FDD and Combo Drive (DVD-ROM*/CD-RW**) standard; optional DVD Multi-Drive (DVD-RAM/DVD-ROM/DVD-RW/CD-R/CD-ROM/CD-RW)</li> </ul> </li> <li>With 2.0GHz Processor:                             <ul style="list-style-type: none"> <li>256MB SDRAM standard, expandable to 768MB (PC-2100 memory is required)</li> <li>40GB HDD (shock-mounted &amp; easily removable)</li> <li>Integrated 1.44MB FDD and DVD-ROM Drive standard; optional Combo Drive (DVD-ROM*/CD-RW**) or DVD Multi-Drive (DVD-RAM/DVD-ROM/DVD-RW/CD-R/CD-ROM/CD-RW)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>256MB SDRAM standard, expandable to 768MB (PC-2100 memory is required)</li> <li>30GB HDD</li> <li>1.44MB FDD standard</li> <li>DVD-ROM Drive* standard</li> </ul>	<ul style="list-style-type: none"> <li>256MB SDRAM or 512MB standard, expandable to 768MB or 1GB (PC-2100 memory is required)</li> <li>40GB HDD</li> <li>1.44MB FDD standard</li> <li>Combo (DVD-ROM*/CD-RW**) Drive standard</li> </ul>	<ul style="list-style-type: none"> <li>256MB SDRAM standard, expandable to 512MB</li> <li>20GB HDD</li> </ul>	<ul style="list-style-type: none"> <li>256MB SDRAM standard, expandable to 512MB</li> <li>40GB HDD</li> </ul>
Display	<ul style="list-style-type: none"> <li>14.1" 1024 x 768 (XGA) TFT Active Matrix Color LCD</li> <li>External video support up to 2048 x 1536 (32 bit color depth)</li> <li>ATI Mobility RADEON 9000 video controller, 64MB VRAM</li> </ul>	<ul style="list-style-type: none"> <li>With 2.2GHz Processor, 15" 1600 x 1200 (UXGA) TFT Active Matrix Color LCD</li> <li>With 2.0GHz Processor, 15" 1024 x 768 (XGA) TFT Active Matrix Color LCD</li> <li>External video support up to 2048 x 1536 at 4 billion colors (32 bit color depth)</li> <li>ATI Mobility RADEON 7500 video controller, 64MB VRAM</li> </ul>	<ul style="list-style-type: none"> <li>13.3" 1024 x 768 (XGA) outdoor-readable, anti-reflective TFT Active Matrix Color LCD with or without Touchscreen</li> <li>External video support up to 2048 x 1536 at 4 billion colors (32 bit color depth)</li> <li>ATI Mobility RADEON 7500 video controller, 32MB VRAM</li> </ul>	<ul style="list-style-type: none"> <li>13.3" 1024 x 768 (XGA) outdoor-readable, anti-reflective TFT Active Matrix Color LCD with Touchscreen</li> <li>External video support up to 2048 x 1536 at 4 billion colors (32 bit color depth)</li> <li>ATI Mobility RADEON 9000, 32MB VRAM</li> </ul>	<ul style="list-style-type: none"> <li>10.4" 1024 x 768 XGA anti-glare TFT Active Matrix Color LCD</li> <li>External video support up to 1280 x 1024 at 16 million colors</li> <li>Intel® FW82830M integrated video controller max. 48MB (UMA) VRAM</li> </ul>	<ul style="list-style-type: none"> <li>12.1" 1024 x 768 XGA anti-glare TFT Active Matrix Color LCD</li> <li>External video support up to 1280 x 1024 at 16 million colors</li> <li>Intel® FW82830M integrated video controller max. 48MB (UMA) VRAM</li> </ul>
PC Card Slot/Expansion	<ul style="list-style-type: none"> <li>Type II x 2 or Type III x 1</li> </ul>	<ul style="list-style-type: none"> <li>Type II x 2 or Type III x 1</li> </ul>	<ul style="list-style-type: none"> <li>Type I or II x 2 or Type III x 1</li> </ul>	<ul style="list-style-type: none"> <li>Type I or II x 2 or Type III x 1</li> </ul>	<ul style="list-style-type: none"> <li>PC Card Type I or II</li> <li>Secure Digital (SD) Memory Card</li> </ul>	<ul style="list-style-type: none"> <li>PC Card Type I or II</li> <li>Secure Digital (SD) Memory Card</li> </ul>
Multimedia Pocket			<ul style="list-style-type: none"> <li>Holds 1.44MB FDD (standard)</li> <li>Holds 8X (max) DVD-ROM Drive* (standard)</li> <li>Accepts optional CD-RW Drive** (CF-VCW721W)</li> <li>Accepts optional Combo Drive (DVD-ROM*/CD-RW**) (CF-VDR721M)</li> <li>Accepts optional Battery Pack Adapter***** (CF-VAB721W)</li> <li>Accepts optional Hard Disk Drive (CF-VHD7230)</li> <li>Hot-swappable</li> </ul>	<ul style="list-style-type: none"> <li>Holds Combo Drive (DVD-ROM*/CD-RW**) (standard)</li> <li>Accepts DVD Multi Drive (CF-VDM731U)</li> </ul>		
Wireless LAN	<ul style="list-style-type: none"> <li>Intel® PRO/Wireless 2100 network connection, supporting 802.11b</li> </ul>			<ul style="list-style-type: none"> <li>Intel® PRO/Wireless 2100 network connection, supporting 802.11b</li> </ul>		
Interface	<ul style="list-style-type: none"> <li>Network Interface Card</li> <li>Modem</li> <li>Serial</li> <li>Parallel</li> <li>External Video</li> <li>External Keyboard/Mouse</li> <li>Port Replicator</li> <li>USB 2.0 (x2)</li> <li>Headphones/Speaker</li> <li>Microphone/Line In</li> </ul>	<ul style="list-style-type: none"> <li>Network Interface Card</li> <li>Modem</li> <li>Serial</li> <li>Parallel</li> <li>External Video</li> <li>External Keyboard/Mouse</li> <li>Port Replicator</li> <li>USB 2.0 (x2)</li> <li>Headphones/Speaker</li> <li>Microphone/Line In</li> <li>IEEE 1394 (Firewire)</li> </ul>	<ul style="list-style-type: none"> <li>Network Interface Card</li> <li>Modem</li> <li>Infrared</li> <li>Serial</li> <li>Parallel</li> <li>External Video</li> <li>External Keyboard/Mouse</li> <li>USB (x2)</li> <li>Port Replicator</li> <li>Headphones/Speaker</li> <li>Microphone/Line In</li> </ul>	<ul style="list-style-type: none"> <li>Network Interface Card</li> <li>Modem</li> <li>Serial</li> <li>External Video</li> <li>USB 2.0 (x2)</li> <li>Port Replicator</li> <li>Headphones/Speaker</li> <li>Microphone/Line In</li> <li>IO Box</li> </ul>	<ul style="list-style-type: none"> <li>Network Interface Card</li> <li>Modem</li> <li>External Video</li> <li>USB 2.0</li> <li>USB 1.0</li> <li>Headphones/Speaker</li> <li>Microphone/Line In</li> <li>SD Card</li> </ul>	<ul style="list-style-type: none"> <li>Network Interface Card</li> <li>Modem</li> <li>External Video</li> <li>USB 2.0 (x2)</li> <li>Headphones/Speaker</li> <li>Microphone/Line In</li> <li>SD Card</li> </ul>
Power Supply	<ul style="list-style-type: none"> <li>Lithium Ion battery pack (11.1V, 6300mAh)</li> <li>Battery operation: 3.5 to 5.5 hours***</li> <li>Battery charging time: approximately 3.5 hours/OFF, 6.0 hours/ON***</li> <li>AC Adapter: AC 100V-240V 50/60Hz, Auto-sensing/switching for worldwide power supply</li> <li>Pop-up on-screen battery status reporting</li> </ul>	<ul style="list-style-type: none"> <li>Lithium Ion battery pack (11.1V, 6300mAh)</li> <li>Battery operation: up to 3.5 hours***</li> <li>Battery charging time: approximately 3 hours/OFF, 5.5 hours/ON***</li> <li>AC Adapter: AC 100V-240V 50/60Hz, Auto-sensing/switching for worldwide power supply</li> <li>Pop-up on-screen battery status reporting</li> </ul>	<ul style="list-style-type: none"> <li>Lithium Ion rechargeable battery pack (11.1V, 3.6Ah)</li> <li>Battery operation: up to 2.5 hours (with first battery), up to 4.5 hours (with second battery)***</li> <li>Battery charging time: approximately 3.5 hours/OFF, 3.5 hours/ON***</li> <li>AC Adapter: AC 100V-240V 50/60Hz, Auto-sensing/switching for worldwide power supply</li> <li>Intelligent power measurement for precise battery status reporting</li> <li>Pop-up on-screen battery status reporting</li> </ul>	<ul style="list-style-type: none"> <li>Lithium Ion rechargeable battery pack (11.1V, 3.8Ah)</li> <li>Battery operation: 3.5 to 5.5 hours***</li> <li>Battery charging time: approximately 3 hours/OFF, 3 hours/ON***</li> <li>AC Adapter: AC 100V-240V 50/60Hz, Auto-sensing/switching for worldwide power supply</li> <li>Intelligent power measurement for precise battery status reporting</li> <li>Pop-up on-screen battery status reporting</li> </ul>	<ul style="list-style-type: none"> <li>Lithium Ion battery pack (7.4V, 4400mAh)</li> <li>Battery operation: up to 5 hours***</li> <li>Battery charging time: approximately 3 hours***</li> <li>AC Adapter: AC 100V-240V 50/60Hz, Auto-sensing/switching for worldwide power supply</li> <li>Pop-up on-screen battery status reporting</li> </ul>	<ul style="list-style-type: none"> <li>Lithium Ion battery pack (7.4V, 4400mAh)</li> <li>Battery operation: up to 4 hours***</li> <li>Battery charging time: approximately 3 hours***</li> <li>AC Adapter: AC 100V-240V 50/60Hz, Auto-sensing/switching for worldwide power supply</li> <li>Pop-up on-screen battery status reporting</li> </ul>
Software	<ul style="list-style-type: none"> <li>Microsoft® Windows® XP or 2000</li> <li>Setup, On-line Reference Manual, Adobe® Acrobat® Reader</li> </ul>	<ul style="list-style-type: none"> <li>Microsoft® Windows® XP or 2000</li> <li>Setup, Diagnostics, On-line Reference Manual, Adobe® Acrobat® Reader</li> </ul>	<ul style="list-style-type: none"> <li>Dual-load Microsoft® Windows® XP/2000</li> <li>Setup, Diagnostics, DMI Viewer, Battery Status Utility, Adobe® Acrobat® Reader, On-Line Reference Manual</li> </ul>	<ul style="list-style-type: none"> <li>Microsoft® Windows® XP or 2000</li> <li>Windows® XP Professional Service Pack 1</li> <li>Windows® 2000 Professional Service Pack 3</li> <li>Setup, DMI Viewer, Adobe® Acrobat® Reader, On-Line Reference Manual, Hard Disk Data Erase Utility</li> </ul>	<ul style="list-style-type: none"> <li>Preloaded Microsoft® Windows® XP Professional</li> <li>Setup, Diagnostics, On-line Reference Manual, Adobe® Acrobat® Reader</li> </ul>	<ul style="list-style-type: none"> <li>Preloaded Microsoft® Windows® XP Professional</li> <li>Setup, Diagnostics, On-line Reference Manual, Adobe® Acrobat® Reader</li> </ul>
Warranty	<ul style="list-style-type: none"> <li>3 year limited warranty, parts &amp; labor</li> </ul>	<ul style="list-style-type: none"> <li>3 year limited warranty, parts &amp; labor</li> </ul>	<ul style="list-style-type: none"> <li>3 year limited warranty, parts &amp; labor</li> </ul>	<ul style="list-style-type: none"> <li>3 year limited warranty, parts &amp; labor</li> </ul>	<ul style="list-style-type: none"> <li>3 year limited warranty, parts &amp; labor</li> </ul>	<ul style="list-style-type: none"> <li>3 year limited warranty, parts &amp; labor</li> </ul>
Dimensions & Weight	<ul style="list-style-type: none"> <li>1.8"(H) x 10.2"(D) x 12.1"(W)</li> <li>7.48 lbs., including battery</li> </ul>	<ul style="list-style-type: none"> <li>1.85"(H) x 10.9"(D) x 12.8"(W)</li> <li>7.7 lbs., including battery</li> </ul>	<ul style="list-style-type: none"> <li>Touchscreen model                             <ul style="list-style-type: none"> <li>1.9"(H) x 10.5"(D) x 11.7"(W)</li> <li>7.11 lbs., including battery</li> </ul> </li> <li>Non-Touchscreen model                             <ul style="list-style-type: none"> <li>1.8"(H) x 10.5"(D) x 11.7"(W)</li> <li>6.4 lbs., including battery</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>1.7"(H) x 10"(D) x 11.7"(W)</li> <li>4.9 lbs., including battery</li> </ul>	<ul style="list-style-type: none"> <li>1'1.5"(H) x 7.2"(D) x 9.5"(W)</li> <li>2.2 lbs., including battery</li> </ul>	<ul style="list-style-type: none"> <li>1'1.5"(H) x 8.3"(D) x 10.6"(W)</li> <li>2.4 lbs., including battery</li> </ul>
Integrated Options****	<ul style="list-style-type: none"> <li>SmartCard Reader</li> <li>DVD Multi Drive</li> </ul>	<ul style="list-style-type: none"> <li>SmartCard Reader</li> <li>802.11b Wireless LAN</li> <li>Cisco Aironet</li> </ul>	<ul style="list-style-type: none"> <li>SmartCard Reader</li> <li>Wireless Solutions                             <ul style="list-style-type: none"> <li>CDPD</li> <li>Mobitex (Cingular™ Wireless)</li> <li>GSM/GPRS (availability may vary)</li> <li>1xRTT/CDMA (availability may vary)</li> </ul> </li> <li>802.11b Wireless LAN</li> <li>Cisco Aironet</li> </ul>	<ul style="list-style-type: none"> <li>SmartCard Reader</li> <li>Wireless Solutions                             <ul style="list-style-type: none"> <li>GSM/GPRS (availability may vary)</li> <li>1xRTT/CDMA (availability may vary)</li> </ul> </li> </ul>		<ul style="list-style-type: none"> <li>802.11b Wireless LAN</li> </ul>

\*Decoder software is required for DVD movie play. (Included) \*\*CD authoring software is required to write CD-R/RW. (Included) \*\*\*Battery performance features such as charge time and life span can vary according to the conditions under which the computer and battery are used. Battery operation and recharge times will vary based on many factors including screen brightness, applications, features, power management, battery conditioning and other customer preferences. \*\*\*\* Integrated Options may vary depending on your notebook configuration. \*\*\*\*\*Battery pack adapter option requires purchase of battery pack (CF-VZSU148W). Please consult your reseller or Panasonic representative before purchasing.