



# Dell | Precision™ M90 Reviewer's Guide



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## Introducing the Dell Precision™ M90 Mobile Workstation

The Dell Precision M90, Dell's newest high end mobile workstation, is engineered for desktop workstation-class performance in a mobile footprint. Graphics artists, animators and high-end CAD users and other professionals who run multi-threaded applications or work in several applications simultaneously can expect to run demanding applications reliably through dual-core processors and ultra high performance workstation-class OpenGL graphics.

### New Performance Architecture

The Dell Precision M90 is equipped with the latest Intel® Centrino® Duo Mobile Technology including the Intel 945PM Express chipset which supports powerful dual-core Intel® Core™ Duo processors and supports up to 4GB\* of fast 667 MHz DDR2 system memory. As with Intel dual-core Pentium® and Xeon® processors, Intel Core Duo processors are designed to deliver excellent compute performance for multi-threaded applications and in multi-tasking environments.

### Workstation Graphics

Dell offers two outstanding workstation graphics options - the NVIDIA Quadro FX 2500M 512MB and the NVIDIA Quadro FX 1500M 256MB - to enable CAD designers, 3D graphics artists, architects, and other workstation users to go mobile and still have the graphics performance of a typical desktop workstation at their fingertips. With the raw power of a high performance GPU, hardware acceleration for a host of OpenGL functions and up to 512MB dedicated graphics memory, graphics content creators - and their boundless imaginations - can roam free.

### New Displays

The Dell Precision M90 is the first Dell mobile workstation to offer a 17" wide aspect display with resolutions up to WUXGA (1920 X 1200). Large displays help enable workstation users to clearly and easily view large designs and multi-part assemblies, video and tool palettes.

### Dell Quality

Dell Precision mobile workstations undergo the same extensive torture testing as Dell corporate notebooks do, where an average of 300 prototypes are destroyed in testing before the first new model ships. The result is an incredibly rugged line of systems that Dell calls **Ready, featuring Mag-Adapt casing, hard drive strike zones and a high degree of durability that workstation**





## Target Market

The Dell Precision™ M90 mobile workstation is designed to provide desktop workstation-class performance and features in a true mobile platform. Starting at 8.61 lbs\* with a 9-cell battery and CD-ROM drive, the M90 is a truly mobile workstation that can meet your workstation needs.

Engineers, animators and other professionals on the move can use the M90 mobile workstation as a primary design workstation. When traveling to meet with clients at their studios or their job sites, the mobility of the M90 provides these users with the capability to take their work with them and be productive while on the road. Plus, the large wide aspect display can allow them to view and demonstrate models or detail well, and ISV certifications help ensure that workstation applications run flawlessly on their systems.

In addition to great performance, the Dell Precision M90 mobile workstation is a durable system built to withstand some of the worst that mobile users can dish out. With a Mag-Alloy frame and StrikeZone™ for 24/7 protection, the M90 delivers round the clock reliability and helps to minimize end-user downtime.



\* Please refer to Important Information on page 25 for details





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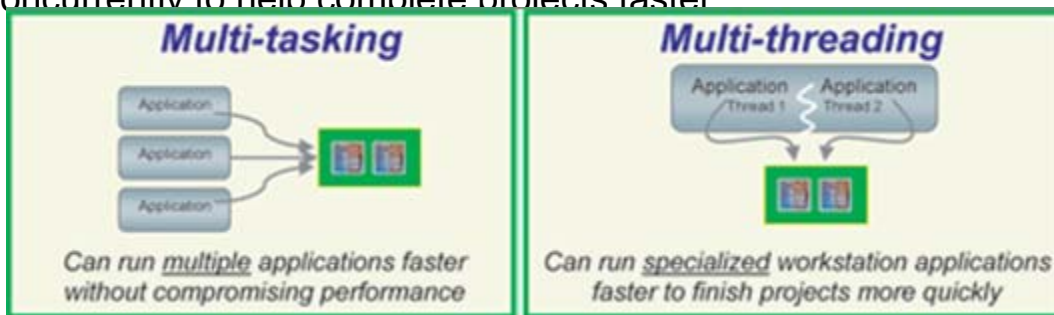
# New Performance Architecture - Processors



The Dell Precision™ M90 delivers high-end performance by incorporating mobile-optimized dual-core architecture and the Intel® 945PM chipset, plus powerful, next-generation technologies in graphics, I/O interface and system memory.

## Intel® Core Duo Processor: Dual-core with 667Mhz System Bus

**Dual-Core Processors** – Dual-core processors can provide increased performance in multi-tasking environments and can enable increased performance for multi-threaded software applications. Separate applications, or threads, split tasks across the two processor cores, meaning instructions can run concurrently to help complete projects faster



The Dell Precision M90 also features a 65nm processor architecture, a power-optimized 667MHz system bus and aggressive clock gating and device sizing techniques designed for higher performance and lower power.

## Other Intel Features

**Intel Smart Cache** is a more efficient cache design that can enable better performance and potential power savings.

**Intel Digital Media Boost** is a combination of technologies that enables improved multimedia and digital office experiences. As a result of the technologies in Intel Digital Media Boost, workstation users can enjoy a better experience when working with digital photography and audio, while editing video, creating content for the web, etc.

**Intel Advanced Thermal Manager** is a suite of technologies that can ensure more accurate measurement of temperature and more efficient thermal management of the system. Improved performance, reduced size, reduced weight and enhanced battery life are all dependent in part on effective thermal management.

**Intel Dynamic Power Coordination** is a set of processor states, coordinated across both cores, that ensures that performance is increased when required and reduced at other times to conserve power and increase battery life.

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## Key features of the Intel® 945PM Express Chipset

- Support for Intel® Core™ Duo processors
- Support for up to 4GB\* system memory and for dual memory channels and DDR2 667MHz memory
- 667 MHz front side bus
- Intel Memory Pipeline technology, which accelerates memory/CPU read/writes
- Serial ATA hard drive support
- Up to 6 PCI express ports
- Small footprint (size)

The Dell Precision™ M90 continues to offer dual channel DDR2 system memory introduced in the last generation of Dell mobile workstations as well as the latest PCI Express architecture.

## Dual Channel DDR2 Memory

DDR2 offers dual-channel\* capability for additional bandwidth and performance, reduced power consumption and scalability to help increase performance with processor and chipset bus architecture.

## PCI-Express (PCI-E) Technology

Serial I/O and Graphics Interconnect provide high performance (up to 8GB/sec bandwidth) backwards compatibility with PCI implementation. PCI-Express is expected to keep pace with processor and I/O advances for the next 10 years or more so offers robust investment protection.

\* Please refer to Important Information on page 25 for details



# New Performance Architecture - Mobile Workstation Graphics



The Dell Precision™ M90 offers a choice of graphics - the NVIDIA® Quadro® FX 2500M with 512MB dedicated graphics memory and the NVIDIA Quadro FX 1500M with 256MB dedicated graphics memory.

**The NVIDIA Quadro FX 2500M 512MB** ultra high performance graphics helps enable workstation application users to enjoy increased productivity through dramatically higher graphics performance than has been available on previous generations of mobile workstations. In addition, many workstation users can potentially enjoy increased productivity by transitioning from a desktop platform to a mobile platform, gaining the benefit of mobility without compromising performance.

**Both the NVIDIA Quadro FX 2500 512MB and 1500M 256MB** graphics solutions offer hardware support, also called hardware acceleration, for a host of OpenGL functions including anti-aliased lines, two-sided lighting, overlay planes and window clipping. These functions are performed fast and well, helping to enable users to be efficient and productive.

The Dell Precision M90 graphics support Quadro FX memory management, which ensures efficient management of memory between applications and windows, as well as 12-bit sub pixel precision to ensure high levels of geometric accuracy, eliminating or reducing anomalies such as cracks or sparkles.

Through comprehensive multi-monitor support, the NVIDIA Quadro FX graphics subsystem enables workstation users who want additional real-estate to connect to dual external displays and get a range of multi-monitor functionality that can help make them more productive.

And NVIDIA Quadro FX graphics will have a full set of certifications including certified drivers that help ensure trouble free operation as well as high performance.



Create and view large, complex models in sharp detail. The Dell Precision™ M90 provides high quality visual real estate in a convenient, mobile form factor with a choice of two wide-aspect (16x10 aspect ratio) 17" LCD panels: the UltraSharp™ WUXGA (1920x1200 resolution) and the active matrix (TFT) WXGA+ (1440x900 resolution).

Dell Precision M65



Dell Precision M90



*23% more viewing area than M65*

## Potential Benefits of Large Wide-Aspect Displays

- Workstation applications used for CAD, DCC, GIS or AEC typically have complex interfaces with multiple windows, menus and tool palettes. The large 17" displays on the M90 can help reduce the clutter and enable users to use the applications conveniently.
- CAD users can utilize the extra real estate to accommodate large, complex models and multi-component assemblies. For example, as opposed to having to visualize individual components, a designer may choose to visualize an entire engine assembly on a large M90 display.
- 3D graphics content creators can benefit from large displays when running multiple applications simultaneously. Large displays can accommodate these application interfaces easily.
- In collaborative work environments, the large 17" display, with its high brightness and wide viewing angles, can enable multiple viewers to clearly visualize content, helping to create more effective collaborative work sessions.
- Large displays on mobile systems like the M90 can help to minimize the need for some workstation users to have an additional external display at their desks, potentially yielding space as well as cost savings.





Dell Precision™ mobile workstations are subjected to extensive shock and fatigue testing, destroying many prototypes before the first new model ships. The result is an incredibly tough line of notebooks that features Mag-Alloy casings and a high degree of durability that you can rely on, day in and day out.

- **RoadReady** shock and fatigue testing subjects Dell Precision mobile workstations to conditions worse than they will likely encounter in everyday use
  - Innovative tests like the Dust Resistance test and Train Test (LCD wobble)
  - Tough new specifications based on customer preferences such as those for keyboards, buttons and skin temperatures
  - Conducted in a 130K sq. ft. testing facility dedicated to ensuring high quality systems

• Designed to result in a highly reliable notebook

## Environmental Exposure and Shock

- High/ Low temperature
- Humidity
- Altitude
- Drop – multiple angles
- Dust resistance
- Vibration
- Spill resistance

## Voice of the Customer

- Surface temperature
- System acoustics
- Headphone acoustics
- Base and LCD back rigidity
- Keyboard deflection
- Button deflection
- Cable lock slot pull test

## Conformance

- Conformance to industry standards
- Safety (hi-potential, leakage, ESD)

## Fatigue

- Highly accelerated life testing
- LCD durability
  - Pogo (point pressure)
  - Screen marking resistance (weight and vibration)
  - LCD back weight resistance
- Base torsion
- LCD torsion
- Hinge cycling
- Hinge stiffness, “The Train Test”
- Button cycling
- Connector cycling

## Performance benchmarking

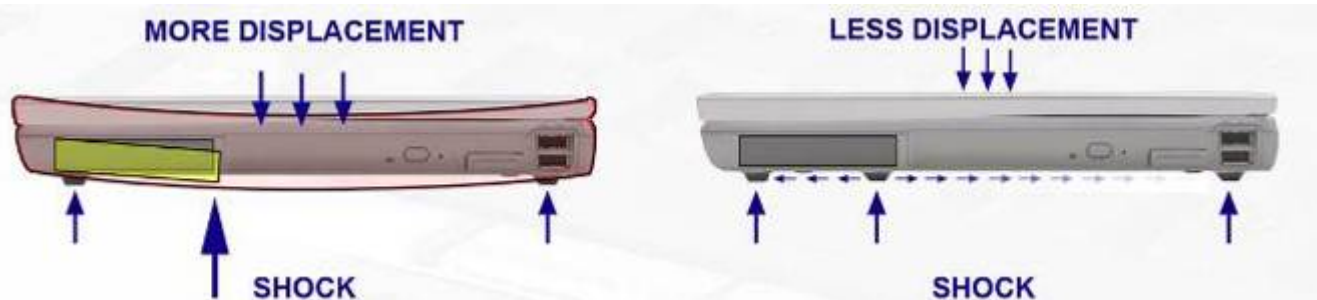
- LCD performance
- System performance benchmarks
- Wireless benchmarks
- Battery benchmarks
- Battery recharge times
- Speaker/headphone performance



## Data Protection with Strike Zone™

To protect the hard drive and your data from the rough reality of mobile computing, Dell created Strike Zone shock absorber to control the shock measured at the hard drive when a system is bumped or jolted. Dell Strike Zone has been designed to reduce acceleration input to a hard drive over systems without the technology. Strike Zone offers drive protection whether the system is on, suspended, in hibernate mode, or turned off completely.

### Dell Patented Strike Zone™ Technology



## Tough Magnesium Alloy Chassis

A magnesium alloy exoskeleton protects sensitive components and delivers durability you can feel. Steel hinges have been redesigned to reduce wobble and are tested up to 20,000 cycles. The Dell Precision™ M90 has a magnesium alloy chassis for improved rigidity and reliability.

## Designed by Customers, Built by Dell

The Direct Model combined with manufacturing excellence enable Dell to manage and improve product quality at every step. Customer feedback enables generation over generation improvements in fit, finish and design. All Dell Precision mobile workstations are assembled in Dell-owned factories worldwide. Strict manufacturing process controls help reduce manufacturing induced errors, and every system is burned in and inspected prior to shipping to the customer.

The Dell Precision M90 uses long-lasting 9-cell 85 WHr Smart Lithium-Ion batteries and efficient ExpressCharge™ technology that can help provide users with more up time and increased productivity.

**ExpressCharge™** - Allows users to charge a 9-cell 85 WHr battery to 80% in approximately one hour with the computer turned off.

**Battery Health Meter** – Alerts you as battery charge declines so that you are advised of the relative health of your battery and when it may be nearing the end of its effective life.

Please refer to Important Information on page 25 for details

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Smart Security offers a comprehensive but flexible security suite - allowing you to choose only the security solutions you need.



## Physical Security

- ✓ Cable lock slots
- ✓ Media bay screws



## Identity & Data Security

- ✓ Integrated Smart Card readers
- ✓ BIOS passwords



## Network Security

- ✓ WPA - Wi-Fi Protected Access
- ✓ Support for LEAP, CCX



## PC Threat Defense

- ✓ Optional Trusted Platform Module (TPM 1.2)
- ✓ Intrusion alert, optional anti virus software

- Provide security in all four areas
- Deal with expanding threats
- One-size-fits-all doesn't fit everyone

With a robust and comprehensive security selection covering physical, user/data authentication and network security the M90 helps cover your security needs. These security hardware features are matched with a range of security software designed to meet the needs of client-specific protection to enterprise wide security infrastructure; helping to ensure that a mobile fleet is the strongest security link in a networked environment.

The new Dell Precision™ M90 helps keep both system and data protected on every level with a comprehensive range of customizable security features including an integrated Smart Card reader to help make sure only authenticated users can log on to a system and the embedded Trusted Platform Module helps make sure only authenticated systems can access a network.

Plus, if a system is stolen, Computrace® software and service can help track and locate it. With Dell Precision, users can choose the security solutions they need: physical, identity and data; network; and PC threat defense.



# Dell EMBASSY® Security Center by Wave Systems



Dell Precision™ mobile workstations offer the **Dell Embassy® Trust Suite** preinstalled - a robust suite of security applications offering the following client level features:

## Data Protection

**Document Manager:** Designed for strong file and folder encryption with a protected virtual drive that is integrated with Windows® Explorer and File menu operations.

## Password Protection and Automation

**Private Information Manager:** Provides password protection and automation by password management for application, web, and TPM-based passwords including simplified sign on.

## Login Security

**Embassy Security Center:** Provides log in security by providing Multi-factor authentication to Windows and TPM-secured applications enabling users to select from a combination of a TPM secured digital certificate and a windows password.

## Secure Email through TPM

**Secure Wizards:** Wizards to add hardware-security to email, wireless authentication, and Microsoft's Encrypting File System (EFS)

## PKI Support

**TCG – Enabled Cryptographic Service Provider:** Built in to allow any application that uses a PKI infrastructure to use the hardware security of the TPM. An easy choice for certification authorities.

## Customer Benefits

**Enhanced PC security** – Where strong security is required by organizational policy or regulatory guidelines, users can experience enhanced security for passwords, applications, Windows login, personal information, email, wireless authentication, sensitive documents, and more.

**Easy-to-use** – Automated features, wizards and seamless Microsoft® integration assist the user with security features that are familiar and easy-to-use. Signing on to Windows and TPM-secured applications is simplified and strengthened through multifactor authentication. The solution also includes digital certificates allowing users to start using hardware security out of the box.

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Connect simply, reliably and securely, everywhere you go. Dell mobile workstations, like all Dell notebooks, integrate some of the newest generation of wireless technologies and services to make going wireless so effortless. High bandwidth wired and wireless options enable you to move large files, data and images across networks without having to be anchored to your desk.

The wireless solutions on the M90 improve upon previous generation offerings in several key areas:

- **Excellent range**, to ensure that you can stay connected at high bandwidths, even when far away from your access point
- **Low power consumption**, to help enable good battery life and thermals
- **Cisco Compatible Extensions (CCX) v4.0 support**, to enable good compatibility and high security
- **New graphical user interface (GUI)**, to ease user interaction and management of user options
- **New location profiler** (tied into Quickset), to make staying connected easy while changing locations

### Intel Centrino™ Mobile Technology solutions

The M90 features Intel® Centrino™ Mobile technology which includes the Intel® Pro/Wireless 3945 802.11a/g Dual band Mini-card. Intel® Centrino™ Mobile Technology is designed to deliver excellent wireless performance while optimizing notebook battery life.

### Dell Wireless LAN Solutions

The Dell Precision™ M90 also features a choice of Dell Wireless Wi-Fi solutions with the option of either the Dell Wireless 1390 802.11g Mini Card or the Dell Wireless 1490 802.11a/g Dual band Mini-card.

### Optional Integrated Dell Wireless 350 Bluetooth Wireless Solutions

The optional Dell 350 card features the latest Bluetooth version 2.0 + EDR technology with a throughput of 3Mbps which allows cable-free computing with Bluetooth enabled devices such as keyboards, mice, PDAs, headsets and mobile phones. Dell's Wi-Fi and Bluetooth solutions are designed to work together with minimal interference. The optional Dell Wireless 350 Bluetooth module incorporates its own dedicated antenna and radio for optimal performance.

\* Please refer to Important Information on page 25 for details

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## Integrated Modem

- The Dell Precision™ M90 features an integrated 56K\* v.92 capable modem for convenience while traveling. The modem supports Wake-on-Ring for unattended telephony, fax access, and remote systems management
- The RJ-11 port is located on the back side of the system



## Integrated 10/100/1000 LAN

- The Dell Precision M90 features an integrated Broadcom 10/100/1000\* Ethernet chip that supports Wake-on-LAN from all power states (Off, Hibernate, and Standby) allowing remote systems management
- The RJ-45 port is located on the back of the system



## Express Card Expansion

- The Dell Precision M90 offers a single Express Card slot providing industry standard connectivity for portable communications, system expansion and increased storage. The slot will accommodate both 54mm and 34mm Express Cards and is hot-swappable.

## Media Modules

- The Dell Precision M90 is designed with a fixed optical bay that can house a 24X CD-ROM, a 24X CD-RW/DVD or an 8X DVD+/-RW\* drive.
- D-Family media modules can also be used in the D/Dock Expansion Station's modular bay and in the external D/Bay Module on both the D/Port and D/Dock.

## Hard Disk Drives

- The Dell Precision M90 offers SATA hard drives that are available in 9.5mm form factors.
- Dell offers a range of Serial ATA hard drives for the M90 up to 120GB\* (5400 RPM) or 100GB\* (7200 RPM)

## Memory

- The Dell Precision M90 offers users a choice of capacities of 667MHz DDR2 dual-channel memory, with configurations up to 4GB\*

\* Please refer to Important Information on page 25 for details





The Dell Precision™ M90 is Microsoft Vista-Ready.

Microsoft Vista enables a new level of confidence in your computer with security and reliability features, including:

- Instant On/Off
- Improved diagnostic instrumentation
- User account protection

Microsoft Vista is also expected to provide you with clear ways to easily organize, see and use your information, like:

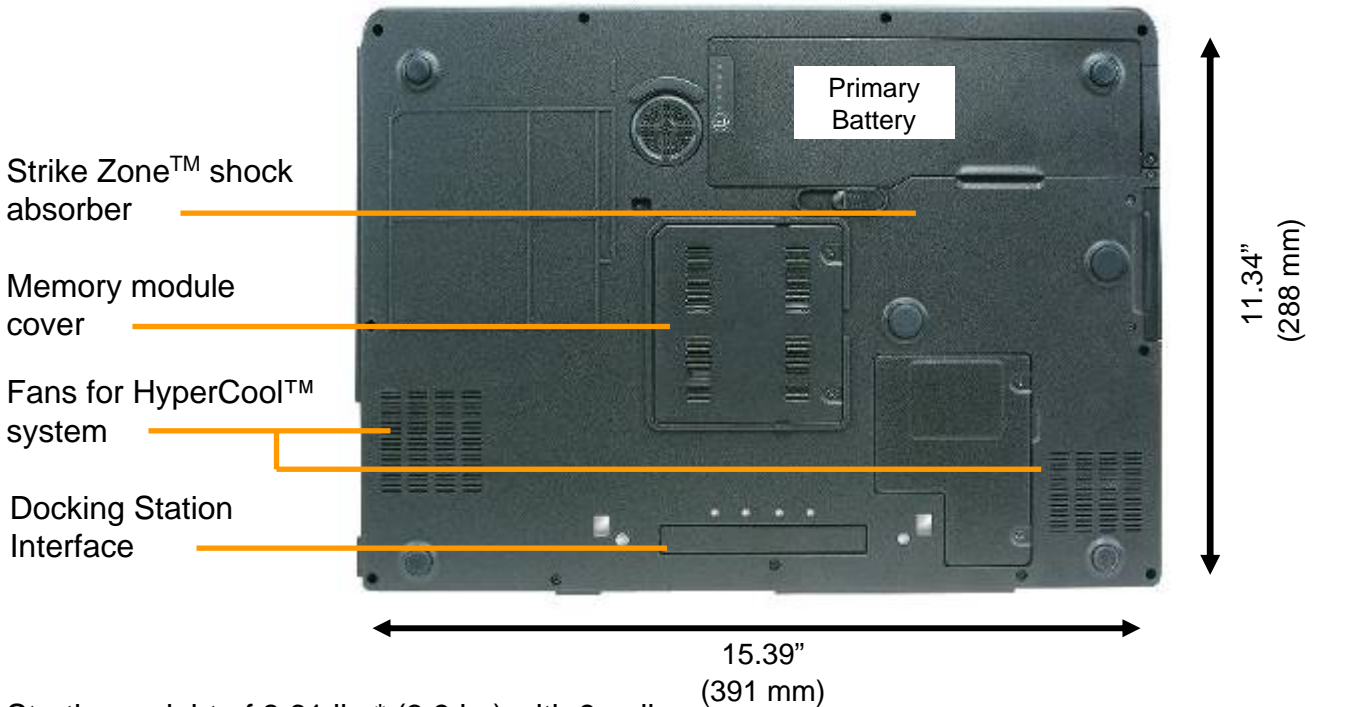
- Better organization with virtual folders
- Improved search and find
- Fixed format documents

Microsoft Vista will be designed to assist in seamlessly connecting you to people and devices, like easy device synchronization with printers and cell phones and support for advanced wireless links.





- 17" wide aspect ratio anti-glare display options
- Dell UltraSharp™ WUXGA (1920x1200 resolution)
  - WXGA+ (1440x900 resolution)



Starting weight of 8.61 lbs\* (3.9 kg) with 9-cell battery and CD-ROM drive

\* Please refer to Important Information on page 25 for details





## Left



Security cable slot

USB (2)

Fixed optical drive

Note: No PC card slot

## Right



Smart card slot

Express card slot

5-in-1 media memory card reader

IEEE 1394 4-pin connector

## Back



S-video TV-out

USB (4)

DVI-D

VGA

Note: No Serial connector





The Dell Precision™ M90 is compatible with most Dell Notebook D-series docking products including the D/Port Advanced Port Replicator and the D/Dock Expansion Station.

## D/Port Advanced Port Replicator

The D/Port allows you to maximize your work space while expanding your desktop. It provides convenient cable management and alleviates the need to re-connect peripherals each time you return to your desk. One simple connection provides access to 15 expansion ports including: VGA, DVI, S-Video, Parallel, Serial, PS/2 (x2), Headphone, S/PDIF, USB 2.0 (x4), RJ-11, RJ-45 and D/Bay Connector for utilizing external D-Family media modules



D/Port Advanced Port Replicator



D-Family Monitor Stand with D/Port

## D/Dock Expansion Station

Obtain exceptional expandability with the D/Dock Expansion Station. The D/Dock features the same 15 expansion ports as the D/Port, as well as:

- One full-height (106.68mm/4.2") /half-length (167.64mm/6.6") standard PCI slot
- An internal media bay supporting Latitude D-Family media modules
- Media module battery charging



D/Dock Expansion Station



D-Family Monitor Stand

## D/Port and D/Dock Key Shared Features & Benefits

- Multiple video ports: S-Video TV-out, Video, Digital Video Interface (DVI)
- Dual Display Support via VGA and DVI ports
- Two Audio Ports: S/PDIF & easy access Headphone jack
- Four USB 2.0 ports for use with additional peripherals
- D-Bay Connector for External Media Bay Module
- Security with Easy-to-Use Cable Lock

Note: D-view Notebook stand not supported





## Dell Precision™ M90 Mobile Workstation

<b>Processor</b>	Intel® Core™ Duo processors (dual-core) 2MB L2 Cache, 667MHz Front Side Bus Up to T2600 (2.17GHz speed)
<b>Chipset</b>	Intel® 945PM Express chipset
<b>Memory</b>	Up to 4GB* of DDR2 dual-channel* memory DIMMs up to 2GB at 667MHz
<b>Wide Aspect Displays</b>	17" wide aspect ratio displays (anti-glare) - Dell UltraSharp™ WUXGA (1920 X 1200 resolution) - WXGA+ (1440 X 900 resolution)
<b>Graphics</b>	NVIDIA® Quadro® FX 1500M with 256MB dedicated graphics memory NVIDIA® Quadro® FX 2500M with 512MB dedicated graphics memory Both are OpenGL PCI Express GPUs
<b>Hard Disk Drives</b>	Serial ATA hard drives up to 120GB* (5400 RPM) or 100GB* (7200 RPM)
<b>Optical Devices</b>	8X DVD+/-RW*, 24X CD-RW/DVD, 8X DVD-ROM, 24X CD-ROM
<b>Modem</b>	Internal 56K* V.92 modem
<b>Networking</b>	Internal 10/100/1000* network interface controller
<b>Wireless</b>	Dell Wireless 1390 802.11g Mini-card Dell Wireless 1490 802.11a/g Dual band Mini-card Intel® Pro/Wireless 3945 802.11a/g Dual band Mini-card Dell Wireless 350 Bluetooth®
<b>Security</b>	Integrated Smart Card reader and security lock slot TPM 1.2 support
<b>Slots &amp; Ports</b>	5x1 media card reader, Express Card port, docking connector, 6 USB 2.0, IEEE 1394, DVI-D, VGA, S-video, headphone/speaker out, Mic in, infrared port, RJ-11, RJ-45, AC power
<b>Battery</b>	9-cell/85 WHr Smart Lithium Ion battery featuring ExpressCharge™
<b>Operating Systems</b>	Microsoft® Windows® XP Professional SP2
<b>Docking Stations and Port Replicators</b>	D-Family Advanced Port Replicator D-Family Docking Station D/Monitor Stand
<b>Dimensions (HxWxD)</b>	1.63" x 15.39" x 11.34" (41.3 mm x 391 mm x 288 mm)
<b>Weight</b>	8.61 lbs or 3.91 kg starting weight* (with CD-ROM drive) Actual weights depend on configuration and manufacturing variability
<b>Warranty</b>	3-year Limited Warranty with Next Business Day On-Site Service*

\* Please refer to Important Information on page 25 for details





## Driven by industry standards. Delivering cross-platform operability.

An essential component of Dell's Scalable Enterprise strategy, OpenManage for client management is built on industry standards and interoperates with leading enterprise management products. This helps preserve your existing IT investment and enables advanced systems management throughout the entire lifecycle of your hardware and software. OpenManage client management products and services are designed to empower IT professionals with easy-to-use, flexible tools that can help automate both hardware and software management tasks.

### Basic Client Configuration

#### Dell Client Configuration Utility

- Deploy and migrate systems
- Collect hardware and software inventory
- Distribute software
- Move personal settings and preferences to new systems
- Assess the landscape of networked clients

### Client Instrumentation

#### OpenManage Client Instrumentation

- Collect hardware inventory and configuration information
- Receive proactive notification of potential fault conditions
- Remotely perform BIOS updates on a group of Dell systems

### Basic Hardware Management

#### OpenManage Client Connector

- One-to-One Hardware Management

### Workgroup Hardware Management

#### OpenManage IT Assistant

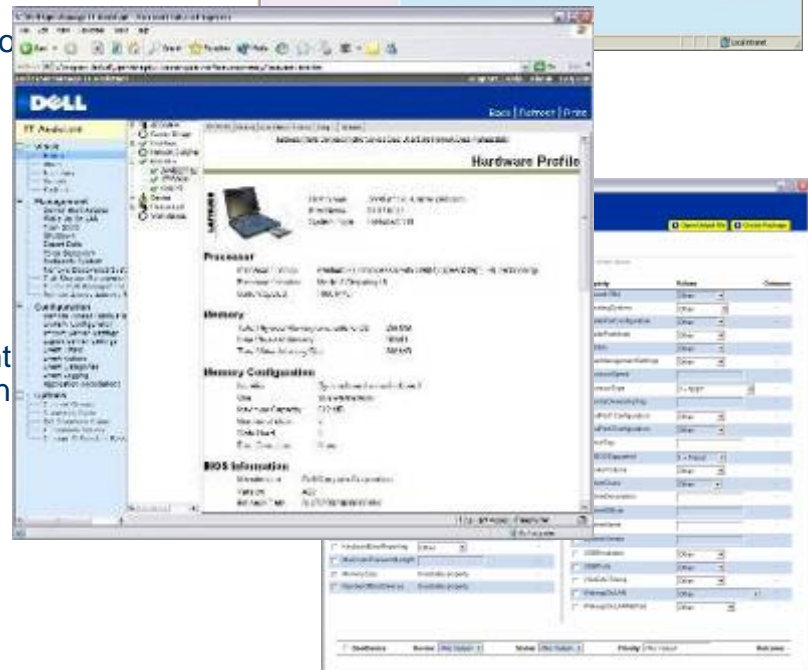
- One-to-Many Hardware management
- Alerting, monitoring and configuration

### Image & Data

#### Backup/Restore

#### Local Recovery

- Automatic, incremental backup
- One-button restore



Learn more about Dell OpenManage systems management solutions at:

[www.dell.com/openmanage](http://www.dell.com/openmanage)





Dell ImageWatch is a flexible and easy to use tool that enables proactive transition management for Dell customers.

ImageWatch assists corporate customers with image-affecting technology transition management by proactively providing product introduction, end-of-life, and transition information for Dell's corporate product lines, peripherals, and software.

Subcat	Product Family	SKU	Configuration	CCP	Region	ESI	ESI	End	End	End	End	End	End	End	End	End	End
CP	PWS 520	PWS 520	Item: L-008 L-008		America	02002	02002										08/15/2012
			Item: L-008 L-008		America	02002	02002										08/15/2012
			Item: L-008 L-008		America	02002	02002										08/15/2012

Subcat	Product Family	SKU	Configuration	CCP	Region	ESI	ESI	End	End	End	End	End	End	End	End	End	End
CP	PWS 520	PWS 520	Item: L-008 L-008		America	02002	02002										08/15/2012

## Features

- Provides introduction through end-of-life information on Dell standard software and hardware components over a six month rolling window
- Includes transition information for all corporate product lines including Dell Precision™ workstations, OptiPlex desktops, Latitude notebooks, PowerEdge server products and PowerVault storage products
- Information is configurable by the customer to only view products they are interested in
- Delivers information via Premier Pages
- Optional Email Notification informs customers when updates have been made to their selected product lines

## Customer Benefits

- Provides additional level of image management through proactive notification of image affecting technology changes
- Provides a single point of contact for transition management and product line stability
- Allows access to information to plan and manage standards and manage change
- Provides IT departments with information to aid purchase and support decisions

## Requirements

- ImageWatch includes highly confidential information about Dell's and our suppliers' product plans. Therefore, only qualified customers may receive ImageWatch.
- To qualify for ImageWatch, a customer must:
  - Have a current, standard NDA on file with Dell plus sign a special NDA for ImageWatch
  - Have an active Premier Page and a strong, lasting relationship with Dell
  - Not be a Dell competitor or supplier, or a competitor to Dell's suppliers
  - Not pose a competitive risk in any way
  - Understand the scope and extreme confidentiality of ImageWatch





## Dell delivers Excellent quality and value into your IT Infrastructure

### Benefits to You:

- **Exceptional Execution** – Dell delivers execution without excuses. We identify best practices that can be applied to delivering services, make them repeatable and then add mass customization.
- **Accountability** – Dell is your single point of contact so you don't have to aggregate solutions and synchronize execution from disparate vendors.
- **Focus** – We offer a customer focused portfolio of services dedicated to IT infrastructure.
- **Resource Optimization** – We can manage every step of the process so your IT staff can focus on other strategic initiatives.

### Deployment Services:

- Asset Discovery
- Application Packaging
- Image Management
- Custom Factory Integration
- Installation

### Asset Recovery and Recycling Services:

- Disposal
- Donation
- Value Recovery
- Lease Return

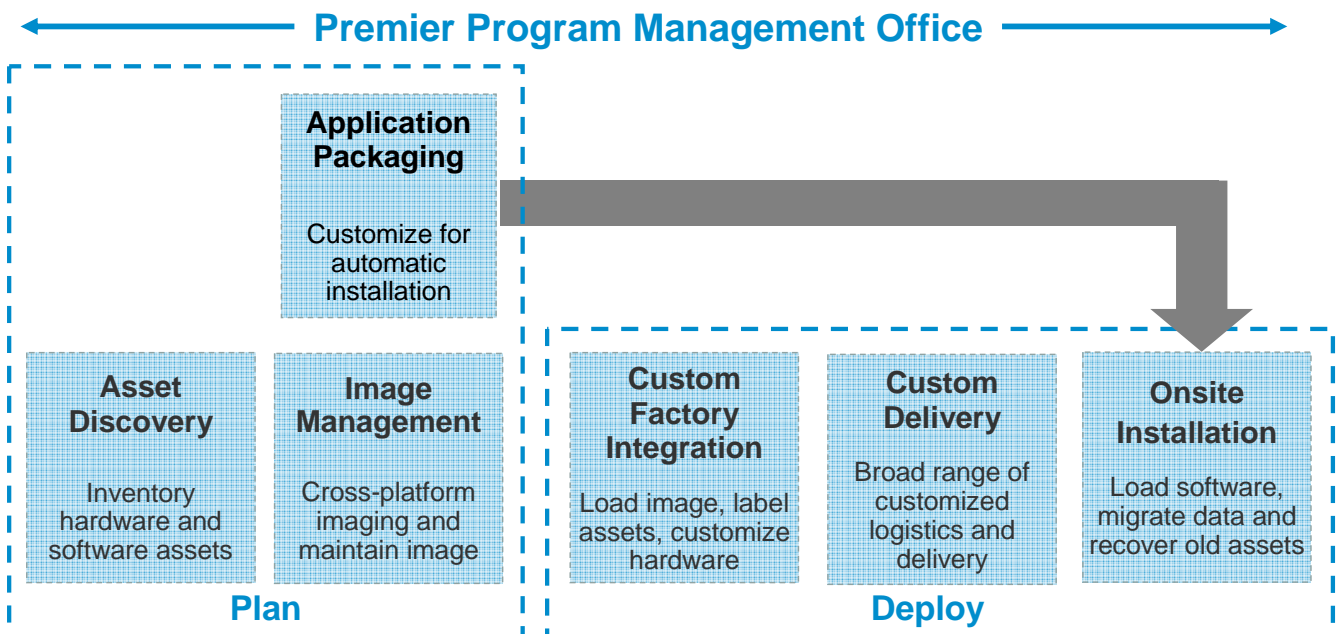
### Client Support Services:

- Gold Technical Support
- HelpDesk
- CompleteCare™ Service

### Deployment Services

Dell's capabilities can be purchased modularly or end-to-end.

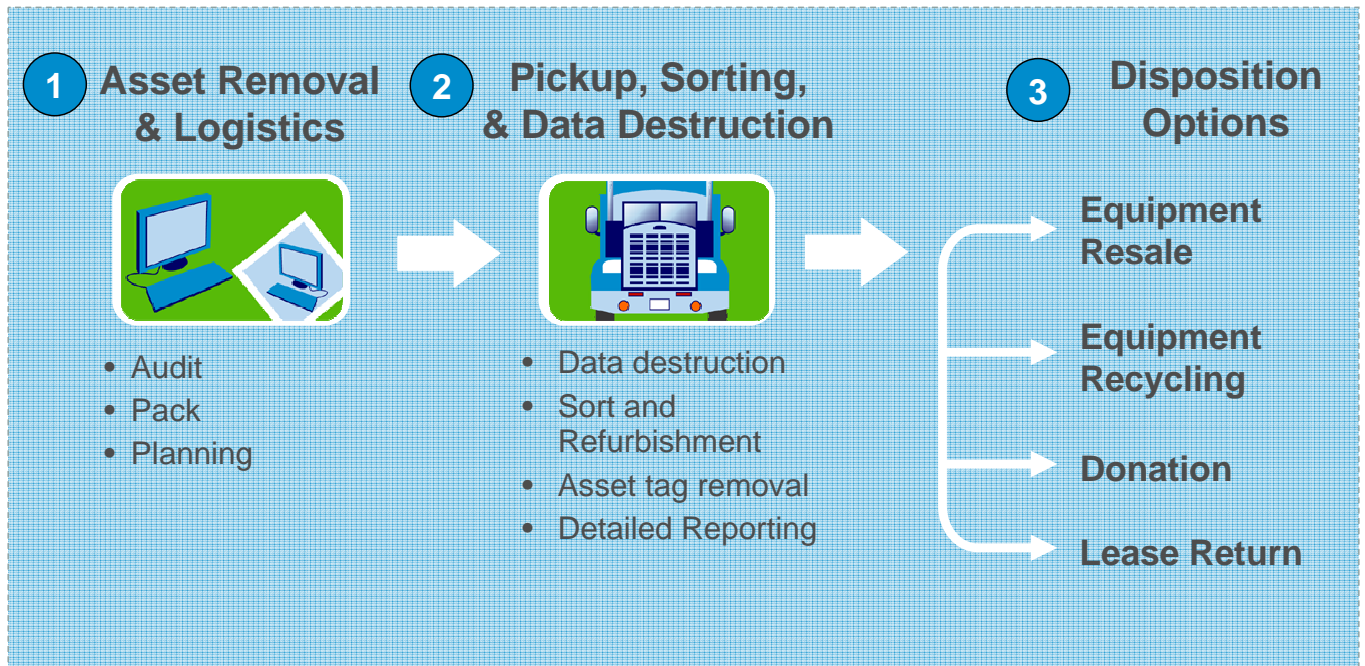
We have a comprehensive Client Deployment portfolio to augment internal resources





## Asset Recovery and Recycling Services

Environmentally focused Asset Recovery & Recycling Services



## Client Support Services

Client Support Services can provide your IT staff and end users with the productivity and response they need...

### Call Support

### Investment Protection

**HelpDesk**  
"Issue Management"

**Gold Technical Support**  
"Expert Response"

**Basic Support**  
"The Foundation"

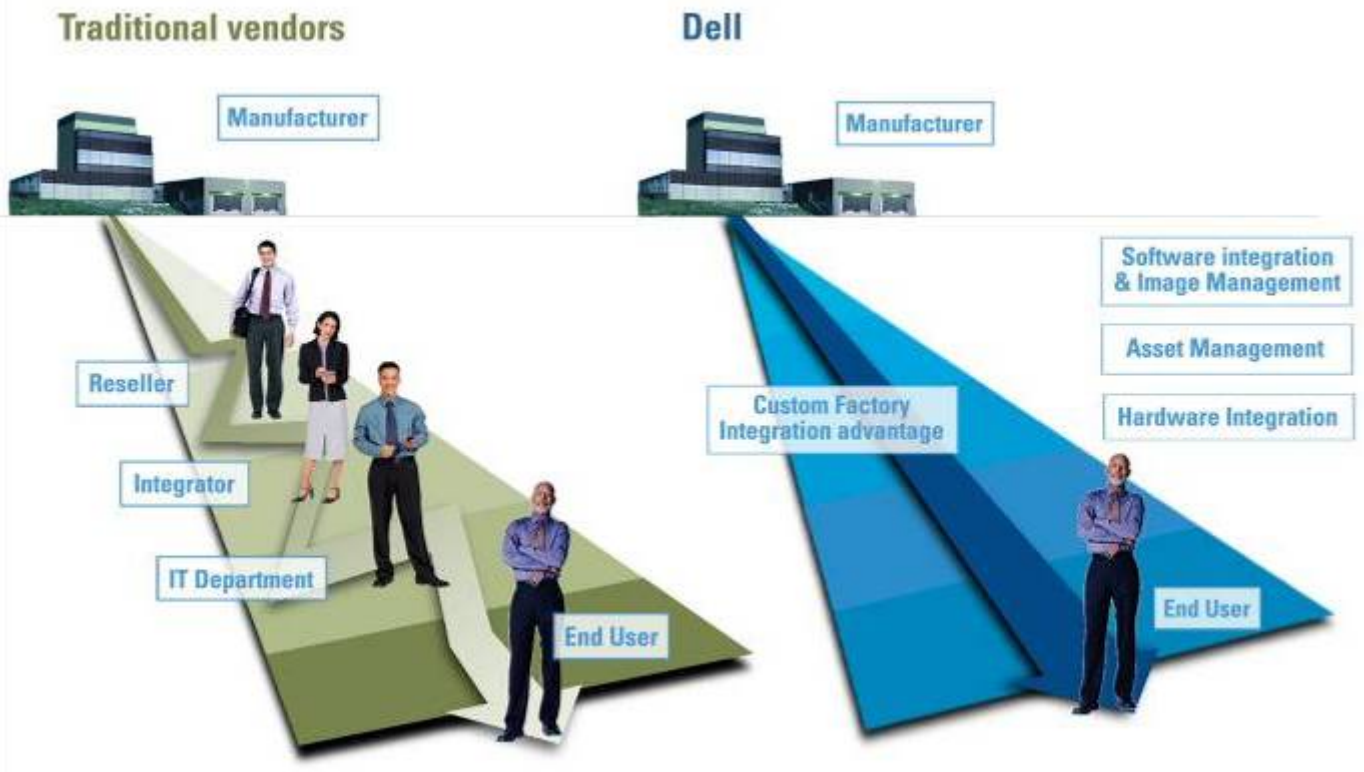
**CompleteCare**  
**Accidental Damage Service**  
"Protection"



...With the delivery quality they expect from Dell

- **Confidence in our expertise** and ability to identify and resolve your issues **quickly**
- **Flexibility** to customize support to your needs and budget
- **Dedicated** and **accountable** technicians committed to customer satisfaction
- Peace of mind that your notebooks are **protected** in a variety of situations

# Custom Factory Integration: Unique Services



## Benefits of Dell's Custom Factory Integration Service

- **Accountability:** One source, one provider. Dell provides a single point of accountability for computer procurement and customization.
- **Quality:** Fewer touches in the integration process means less opportunity for error. Because Dell integrates your customization into the mainstream manufacturing process, opportunities for errors are reduced.
- **Consistency:** ISO 9002 factory processes provide high quality and fast turnaround. A true extension of Dell's direct model, Custom Factory Integration (CFI) provides "configure-to-order" capability, adding flexibility to the deployment process and increasing customers' ability to standardize their IT environments.
- **Frees up IT Resources:** Dell can ship systems that are fully customized and ready to deploy into your production environment. This frees your internal staff to focus on more strategic initiatives.
- **Global Solutions:** Virtually all of our core capabilities are duplicated in Dell's ISO-9002-certified factories around the world. This helps ensure a globally consistent deployment of enterprise solutions.





Dell's business continues to expand around the world and we recognize the growing responsibilities of managing our environmental impacts accordingly. Our global environmental policy provides a comprehensive framework that is designed to ensure sustainable practices throughout the entire life cycle of the product. Dell is driving environmental innovations that your organization can benefit from. Dell encourages you to take advantage of these environmental features when making purchasing decisions. Throughout the purchasing process, we make it easy for you to choose product environmental options and recycling services.



## Product Concept and Design – with Environment in Mind

Dell's focus on improving environmental performance starts with our Design for the Environment (DfE) approach. When designing new systems, engineers consider environmental factors such as amount and composition of components, energy efficiency as well as design attributes that aid in recycling.

## Restricted Materials

Dell avoids the use of environmentally sensitive materials whenever possible. Materials such as heavy metals and plastics containing halogenated flame retardants can pose potential environmental hazards. The emphasis of Dell's Restricted Materials Program is not only to be in compliance with legal requirements such as the European Union's Restrictions on Hazardous Substances (RoHS) directive but also to meet customer requirements to eliminate or minimize the use of certain substances in our products and to design products that are easily recyclable.

## Efficient Use of Materials

Dell endorses the efficient use of materials. Dell's packaging engineers have been successful in minimizing the amount of packaging materials used for shipping PCs and have established aggressive goals to avoid 43,000 tons of product packaging and shipping materials between FY2004 and FY2008.





**Hard drives (GB):** For hard drives, GB means 1 billion bytes and TB equals 1 trillion bytes; actual capacity varies with preloaded material and operating environment and will be less.

**Dual-channel memory:** Dual-channel memory requires 2 each of the same capacity memory DIMMs.

**DVD+/-RW drives:** Discs burned with this drive may not be compatible with some existing drives and players; using DVD+R media provides maximum compatibility.

**Gigabit Ethernet:** This term does not connote an actual operating speed of 1 Gb/sec. For high speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required.

**Modem Speed:** Modem download speeds are limited to 53Kbps. Upload speeds are less (about 30Kbps). Speeds can vary by line condition and modem manufacturer. Analog phone line and service required.

**DVD+/-RW Drives:** Discs burned with this drive may not be compatible with some existing drives and players; using DVD+R media provides maximum compatibility.

**M90 starting weight:** Starting weight of 8.61 lbs (3.9 kg) includes 17" WXGA+ display, 9-cell battery and CD-ROM drive. Weights vary depending on configurations and manufacturing variability.

**On site service:** Service may be provided by third-party. Technician will be dispatched if necessary following phone-based troubleshooting. Subject to parts availability, geographical restrictions and terms of service contract. Service timing dependent upon time of day call placed to Dell. U.S. only.

**Dell's Guarantees/Warranties:** For a copy of our guarantees or limited warranties, please write Dell USA L.P., Attn: Warranties, One Dell Way, Round Rock, TX 78682. For more information, visit [www.dell.com/warranty](http://www.dell.com/warranty).

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This equipment remains the property of Dell Inc. unless paid for in full by the evaluator. Dell Inc. reserves the right to collect from the evaluator the full retail value of the equipment if not returned promptly and in good working condition on or before the due date.

Please return system to:

