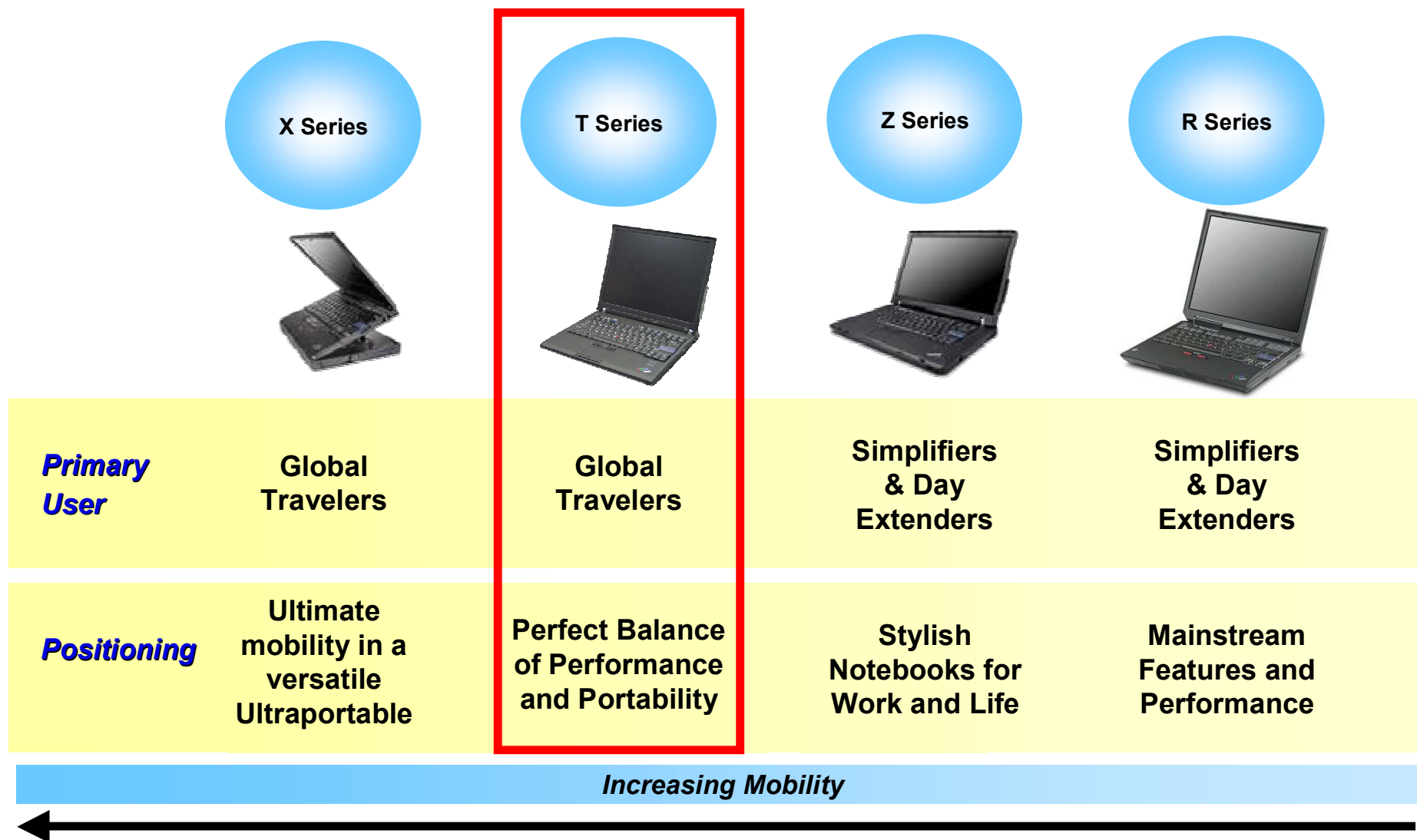Innovation **that** Matters

lenovo

# ThinkPad T60

## The Perfect Balance of Performance and Portability

Lenovo Confidential

Lenovo

# ThinkPad XTZR Alignment with User and Mobility



| | X Series | T Series | Z Series | R Series |
|---|---|---|---|---|
| **Primary User** | Global Travelers | Global Travelers | Simplifiers & Day Extenders | Simplifiers & Day Extenders |
| **Positioning** | Ultimate mobility in a versatile Ultraportable | Perfect Balance of Performance and Portability | Stylish Notebooks for Work and Life | Mainstream Features and Performance |

*Increasing Mobility*

# T60: Key Offering Information

- The T60 is the newest platform in the T Series family, available in 1Q 2006
  - Evolutionary re-design over the T43

- With the T60, Lenovo has made significant improvement in the areas of:
  - Product usability
  - Connectivity
  - System reliability

- T60 is designed around Intel Duo Core and Single Core Processors (announcing 1Q06)
- Primary Target: Large Enterprise

# T60: Highlights

- New T Series Platform
  - 14" and 15" platforms
  - Integrated and Discrete Graphics Models
  - Design "Evolved" from T43 (black only)
  - Integrated 3G Wireless WAN (Verizon in US and Vodafone for EMEA / AP)
  - 14" and 15" Mobile workstation available (T60p)
  - 256MB graphics memory on Workstation
  - Hardware switch for wireless shutoff
  - 100% RoHS Compliant
  - Usability Improvements
  - Three USB Ports

- New Technology
  - 3G Wireless WAN
  - Dual Core and Single Core Processors
  - Serial ATA Hard Drive
  - Intel 945 chipset

*New Docking*
*New Power Adapter*
*(Common with Z Series, 2006 R Series)*

# Key Usability Improvements

- Docking alignment
  - Left-rear corner alignment to eliminate docking problems

- Keyboard changes
  - Windows and Application keys
  - Simplified Fn combinations
  - SysRq, NumLk and Break
  - UltraNav Control (Fn+F8)
  - Multimedia functions via Fn+ Arrow keys (blue icons on keys)

- UltraNav changes
  - Flush pad design used to establish near-equivalent effect area with smaller touch pad
  - Wider buttons

- Changes to indicator LEDs
  - Addition of DC-in LED allows simplified indication of power state, power source & battery capacity
  - WWAN LED added to follow use of WLAN and Bluetooth LEDs

- Port labeling
  - Printed icons on system side provide more visible labeling for ports Wireless switch

- Global on/off for all radios (Fn + F5 will still provide granular control)
  - Positional switch located on front-left bezel of the system

- Audio location
  - Audio on side of system; placing headphone in front of mic

- CRU
  - Screw reduction for keyboard removal and access to components below keyboard and palm rest

- Elimination of all high-gloss finish on inside of system
  - To comply with GS-Mark guidelines and avoid creation of glare points

# New Levels of Protection for Critical System Components

## ThinkPad Roll Cage

- Magnesium alloy frame around critical ThinkPad parts
- Absorbs shock on drop – Similar to the roll cage in a racing car
- Reduces failures, improves durability reliability

## Shock-Mounted Hard Drive

- Hard drive mounted in rubber rails to enhance durability
- Reduces shock to hard drive from any direction
- Effectiveness compounded by shock-mounted feet and Active Protection system

# T60 Included Ports / Locations

**Lock Slot**

**USB 2.0 (2)**

**Video Out**

**Bay Device**

**Ethernet**

**Modem**

**Mic In**

**Headphone**

**USB 2.0 (1)**

**Hard Drive**

**One PC Card**
**One ExpressCard**

**Wireless Cutoff Switch**

# T60 Top / Side Views

# *Product Overview -*
## *ThinkPad T60: Perfect Balance of Performance and Portability*

● Optimized Portability
  – About an inch thin and 4.5lbs travel weight*
  – Long battery life
  – Available in 14" and 15" models
  – Verizon and Vodafone Integrated 3G Wireless WAN

● Optimized Features
  – Connect remotely with Wireless Wide-Area Networking Options**
  – Three USB 2.0 ports
  – ExpressCard and PC Card
  – More durable system design with ThinkPad Roll Cage
  – Save your data with the ThinkVantage Active Protection System and ThinkPad Shock Mounted Hard Drive
  – Mobile Workstation Models with 4GB Memory Support (3GB addressable)
  – Perform system maintenance tasks on *your* schedule with Away Manager

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**Core Technology**

• Intel Duo Core and Single Core Processors

•Dual Layer DVD Multi-Burner

•DDR2 memory running at 667MHz

•Integrated and Discrete Graphics available

•Six connectivity options: Modem, GB Ethernet, IR, Bluetooth, WLAN, WWAN (select models)

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*** Requires Service Contract*

# *Product Overview - ThinkPad T60p*

- Mobile Performance
  - New Intel "Yonah 2P Dual core processors
  - Mobile Workstation Models with 4GB Memory Support (3GB addressable)
  - High Speed SATA Hard Drives (100GB 7200 rpm)
  - New ATI Fire GL V5200 with 256MB VRAM
  - ISV Certifications
- Optimized Portability
  - About an inch thin and 4.5lbs travel weight*
  - Long battery life
  - Available in 14" and 15" models
  - Verizon and Vodafone Integrated 3G Wireless WAN
- Optimized Features
  - Connect remotely with Wireless Wide-Area Networking Options**
  - Three USB 2.0 ports
  - ExpressCard and PC Card
  - More durable system design with ThinkPad Roll Cage
  - Save your data with the ThinkVantage Active Protection System and ThinkPad Shock Mounted Hard Drive
  - Perform system maintenance tasks on *your* schedule with Away Manager

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**Core Technology**

• Intel Duo Core and Single Core Processors

•Dual Layer DVD Multi-Burner

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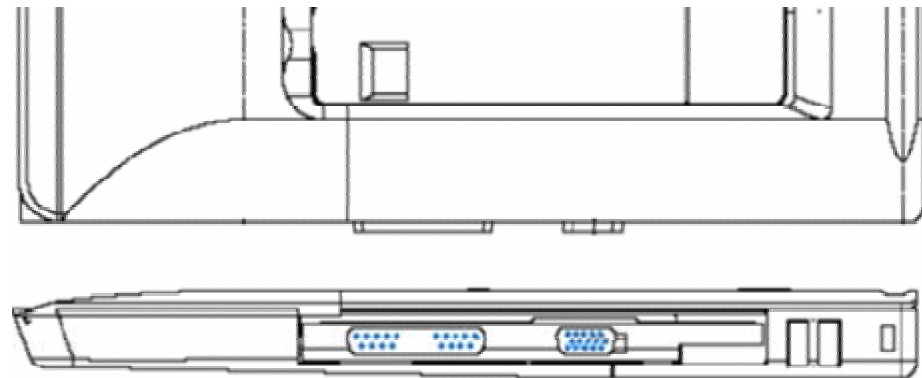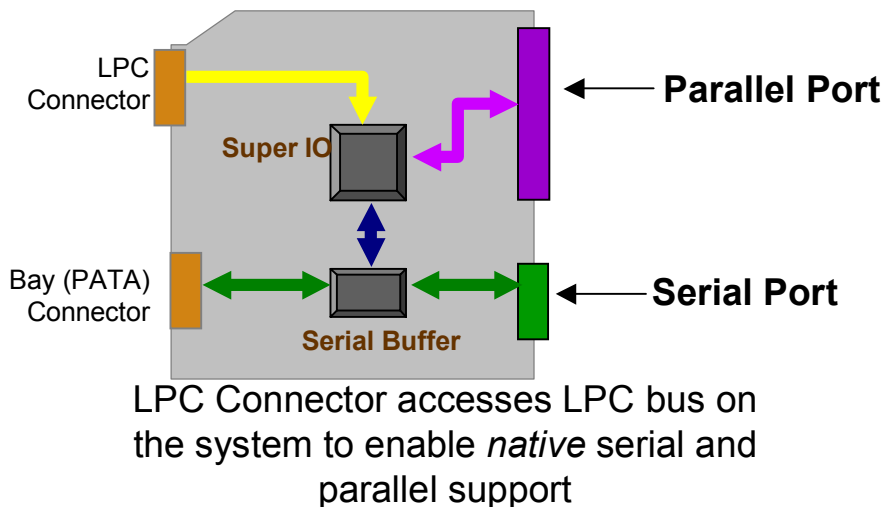•Six connectivity options: Modem, GB Ethernet, IR, Bluetooth, WLAN, WWAN (select models)

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*** Requires Service Contract*

# New Option: Serial / Parallel Bay Adapter*

**For the T60 user who needs to attach to a legacy serial or parallel device…**

*the ThinkPad Serial/Parallel Port Bay Adapter offers the same function as integrated system ports*

## Simplified Circuit Diagram



LPC Connector

Super IO

Bay (PATA) Connector

Serial Buffer

Parallel Port

Serial Port

LPC Connector accesses LPC bus on the system to enable *native* serial and parallel support



**Fits into the Ultrabay Slim device bay on ThinkPad T60 Series systems**

**Offers native serial and parallel signal support to provide the legacy functionality that no longer comes standard on ThinkPads**

*Functions only when system is not attached through the docking connector*

# Technical Specs: T60 vs. T43

| | T60/T60p | T43/T43p |
|---|---|---|
| 3G Wireless WAN | Verizon (US) and Vodafone (EMEA / ANZ) | No |
| ThinkPad Roll Cage | Yes | No |
| Shock-mounted hard drive | Yes | No |
| Windows Keys | Yes | No |
| DVI-Out Supported through Docking | Yes (including Integrated Graphics) | Discrete (ATI) Graphics models only |
| Max Supported Memory | 4GB (3GB Addressable) | 2GB |
| HD Audio | Yes (SPDF available on dock) | No |
| Chipset | 945PM/945GM | 915PM/915GM |
| Processors | "Yonah" Dual Core and Single Core (naming TBD) | Pentium M |
| Front Side Bus / L2 Cache | 667MHz / 2MB | 533MHz / 2MB |
| Hard drives | Serial ATA, Up to 100GB, 7200RPM | Parallel ATA, Up to 100GB |
| Graphics | Intel Integrated or ATI PCI Express up to 256MB, with OpenGL support in hardware | Intel Integrated or PCI Express ATI up to 128MB |
| Card Slots | 1 PC Card Type II 1 Express Card/54 | 1 PC Card Type II 1 Express Card/54 |
| Centrino | Yes | Yes |
| Memory | DDR2 PC4200 | DDR2 PC4200 |
| Client Security Solution | Yes | Yes |
| LCD sizes | 14" XGA, SXGA+ 15" XGA, SXGA+ IPS, UXGA IPS | 14" XGA, SXGA+ 15" XGA, SXGA+ IPS, UXGA IPS |
| Integrated Fingerprint reader | Yes | Yes |
| Battery | 6 cell and 9 cell, 2.6Ah | 6 cell and 9 cell, 2.4Ah |
| Active Protection System | Yes | Yes |
| Ports | Line-in, Microphone, Modem, Ethernet, 3xUSB2.0, VGA Out, Docking | Line-in, Microphone, Modem, Ethernet, S-Video Out, 2xUSB2.0, VGA Out, Parallel, Docking |

# Reference

# Customer Needs and Pain Points-ThinkPad T60

- **Pain Point: Workers need to be productive in an increasing number of locations: Office, Home, Airport, Hotel**
  - With integrated 3G Wireless WAN connectivity (US, EMEA and ANZ), users can connect at high speed even without an Access Point
  - T60 offers leadership design in a thin, light, highly mobile solution that offers all day battery life with integrated wireless networking
- **Pain Point: Users want a system that is easier to use**
  - The T60 is redesigned with numerous ease-of-use innovations
  - ThinkVantage Productivity Center puts all the innovations Lenovo has to offer at your fingertips
- **Pain Point: Increasing cost & complexity of developing and deploying images**
  - T60 offers Global Workhorse models that are available in countries around the world, these models guarantee no hardware changes for 12 months that will affect the image
- **Pain Point: Hackers and stolen data**
  - All ThinkPad T60s are equipped with the Client Security Solution
  - ThinkPad T60 models offer an integrated fingerprint reader
- **Pain Point: Escalating help desk costs due to complex wireless computing solutions and lost passwords**
  - ThinkPad notebooks come preloaded with ThinkVantage Access Connections- utility that provides automatic switching of network, security application and device settings when end-users change locations
  - ThinkPad T60 models offer an integrated fingerprint reader - users can gain access to their system using their fingerprint instead of a password
  - Password Manager allows users to store hundreds of passwords securely, so they won't be forgotten
- **Pain Point: A crashed hard drive can ruin your day**
  - T60 features an integrated solution to hard drive protection that includes the ThinkPad Roll Cage, shock-mounted hard drive and Active Protection System
- **Pain Point: Lack of convenient backup and crash recovery solutions**
  - ThinkPad includes Rescue and Recovery
    - A suite of self-recovery tools to help users backup data, as well as diagnose, get help, and recover even if the operating system will not boot, invoked by utilizing the ThinkVantage button.

# Wireless WAN Country Support Plan

- Supported Countries:
  - Verizon: US
  - Vodafone (Available late Feb – Homologation Schedule still in process)
    - Australia
    - France
    - Germany
    - Greece
    - Hungary
    - Ireland
    - Italy
    - Netherlands
    - New Zealand
    - Portugal
    - Spain
    - Sweden
    - UK

*T60 will <u>not</u> be "Wireless WAN Upgradeable"*

# Other Key T60 Options

- Docking
    - ThinkPad Essential Port Replicator
    - ThinkPad Advanced Mini Dock
    - ThinkPad Advanced Dock
- Hard Drives
    - 60GB / 5400 & 7200
    - 100GB / 5400 & 7200
- 2nd Hard Drive Adapter (SATA)
- Optical Drives
    - CDRW / DVD Combo
    - Multiburner (CDRW DVD / DVD-+R) with Dual Layer Support
- ThinkPad DDR2 Memory
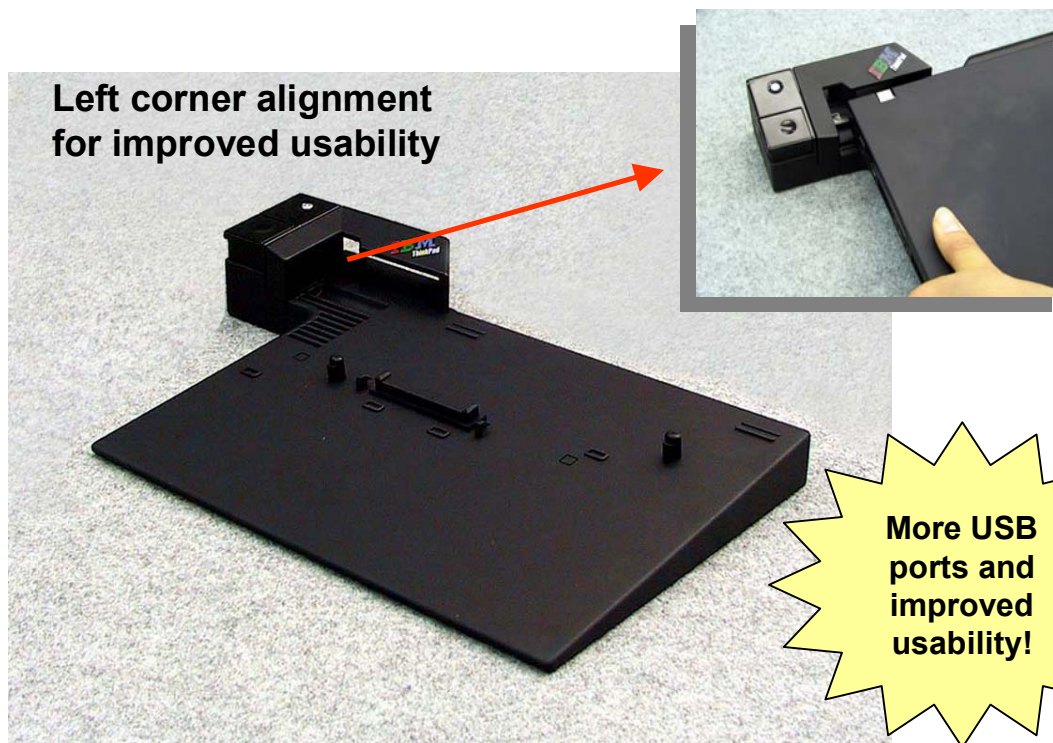- ThinkPad Z60 & T60 Series Batteries & Charger

# ThinkPad Essential Port Replicator

**New port replicator offers basic cable management and connectivity for users of next generation systems**

**Available in September 2005**

**Left corner alignment for improved usability**

**Includes:**
• 4 USB 2.0 ports *NEW*
• VGA
• RJ-11 modem
• RJ-45 Ethernet (GB)
• PS/2
• Cable lock slot

**More USB ports and improved usability!**

**Works with T60, Z60t and Z60m ThinkPad systems (not X Series)**
**Uses 90W AC power adapter**

# ThinkPad Advanced Mini Dock

**New mini dock offers enhanced cable management and connectivity in a streamlined form factor**

**Rich features in a small form factor!**

**Available in September 2005**

**Left corner alignment for improved usability**
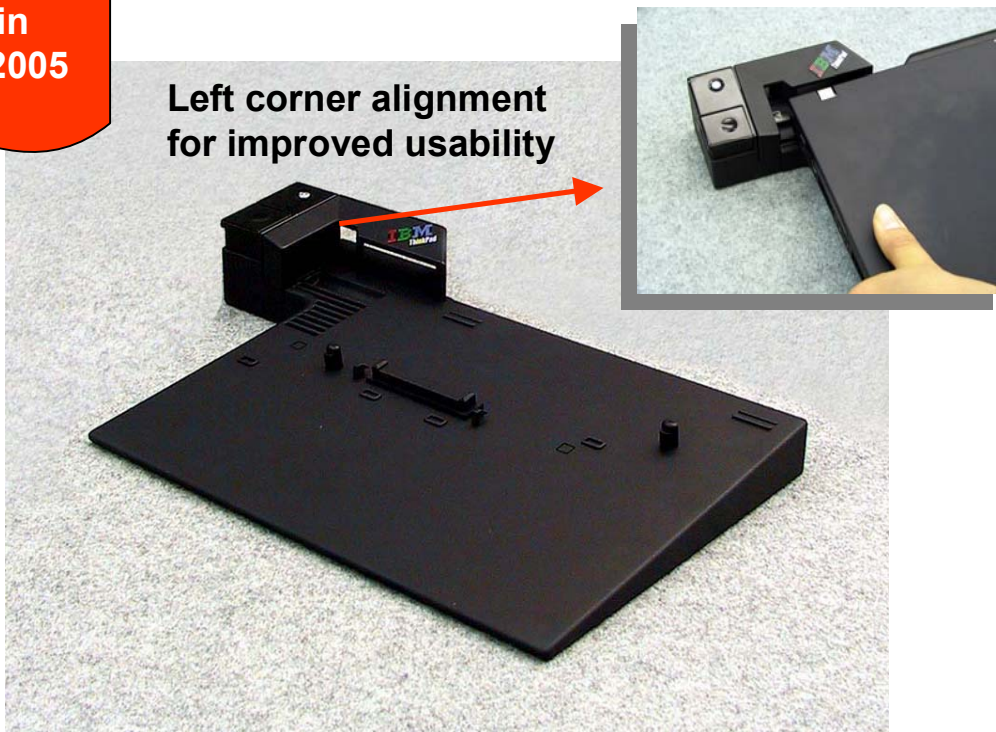
**Includes:**
- 4 USB 2.0 ports
- VGA, DVI-D
- Microphone in
- Headphone out
- Digital audio (S/PDIF) *NEW*
- RJ-11 modem
- RJ-45 Ethernet (GB)
- PS/2, serial, parallel
- Cable lock slot
- Key lock security

**Works with T60, Z60t and Z60m ThinkPad systems (not X Series)**

**Includes 90W AC power adapter**

# ThinkPad Advanced Dock

**New dock offers full connectivity and expansion and the performance of PCI Express**

**Available in September 2005**

**Left corner alignment for improved usability**
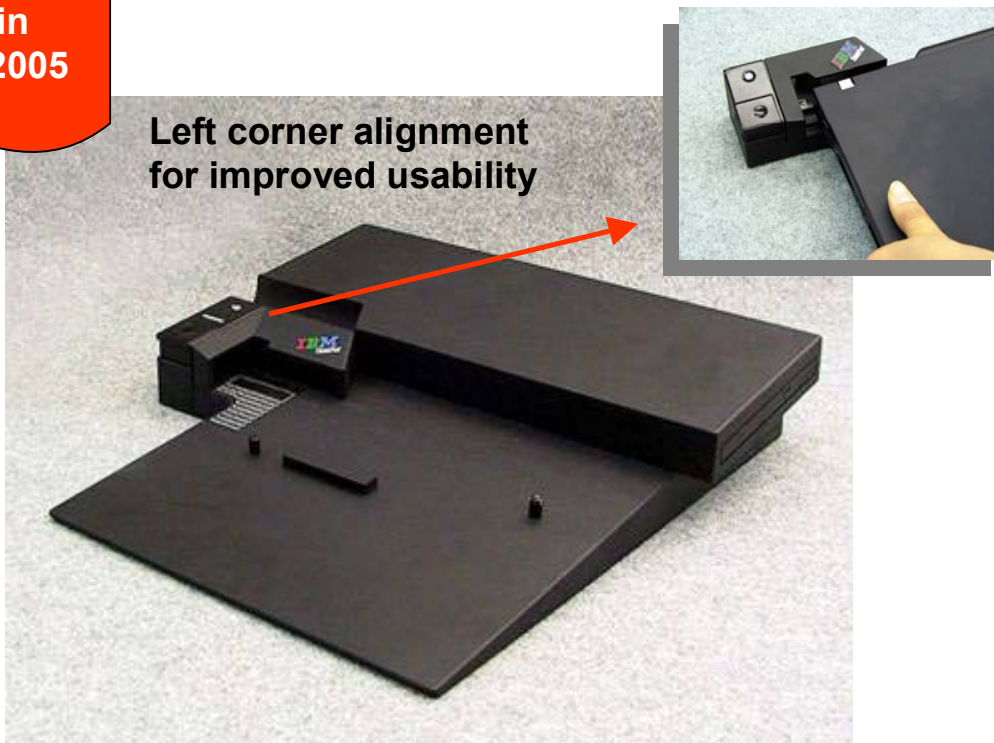


**Includes:**
• Ultrabay Enhanced
• PCI Express card slot  *NEW*
• 6-in-1 media card reader  *NEW*
• 5 USB 2.0 ports  *NEW*
• VGA, DVI-D
• Microphone in
• Headphone out
• Digital audio (S/PDIF)  *NEW*
• RJ-11 modem
• RJ-45 Ethernet (GB)
• PS/2, serial, parallel
• Cable lock slot
• Key lock security

**Works with T60, Z60t and Z60m ThinkPad systems (not X Series)**

**Includes integrated power supply**

**Now with PCI Express and multimedia features!**

# ThinkVantage Productivity Center

*Put all the innovations Lenovo has to offer at your fingertips.*



**Resource Center** serves as a portal to all your ThinkVantage Technology tools and Think utilities. It starts with general information, then allows you to drill down to whatever level of detail you choose.
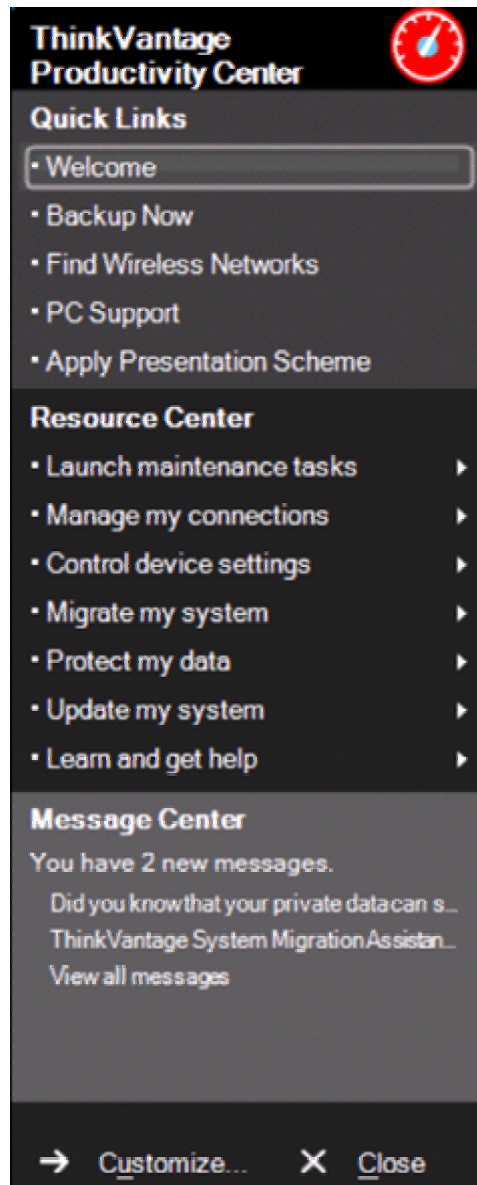
**Away Manager** lets you select and run system maintenance tasks while you are away from your system. While in Away Manager whisper mode, you can run anti-virus and spyware-removal tools in the background without losing any valuable work time. This can help secure your systems and reduce calls to the help desk.

**Quick Links** let you execute common tasks directly. Default links are set to let you quickly back up your system, find wireless networks, run the Security Advisor and get support. The total list includes up to 16 pre-programmed shortcuts. Or, you can create your own.

**Help Center** is a collection of tutorials, consolidated system information and smart links that can help you learn about your computer, offering you help and support without calling the help desk. Help Center can be customized to meet your needs.

# ThinkVantage Access Connections 4.1

"**…the gold standard for wireless utilities and setup…**"
            **- PC Magazine, April 2005**

**Now even better…**
- Integrated Wide Area Networking Support
- Stay connected with Autoswitch
  - Automatically switch between wired, wireless, and WAN connection
- Easy Ad-Hoc (wireless peer to peer)
  - Easier File transfer
  - Collaborate with application sharing through LAN
- Save time with faster profile switching
- Improved Usability
  - Simplified navigation and setup wizard
- AutoUpdate enhancements
  - Updates Access Connections and all related applications (Drivers, On-Screen Display, etc)
- Firefox browser support
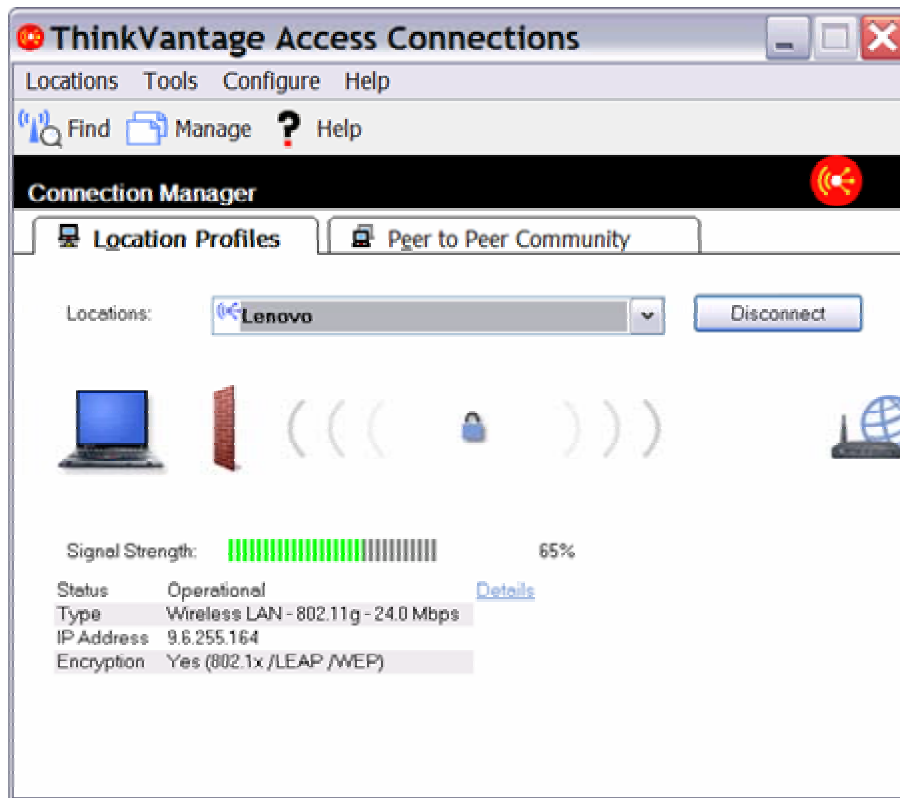
# Away Manager

Manage your computer on *Your* schedule

Part of the ThinkVantage Productivity Center, **Away Manager** lets you select and run system maintenance tasks while you are away from your system.

- Examples of tasks that Away Manager can
  - System Backup (local or remote)
  - Disk Cleanup
  - Disk Defrag
  - Virus Scan
- Schedule to run when convenient for you, or initiate ad-hoc
  - Maintenance tasks execute based on pre-defined priority and Last Run Time
- Run tasks in "Whisper Mode" while you work
  - Run anti-virus and spyware-removal tools in the background without losing valuable work time.
  - Resource priority is user-configurable
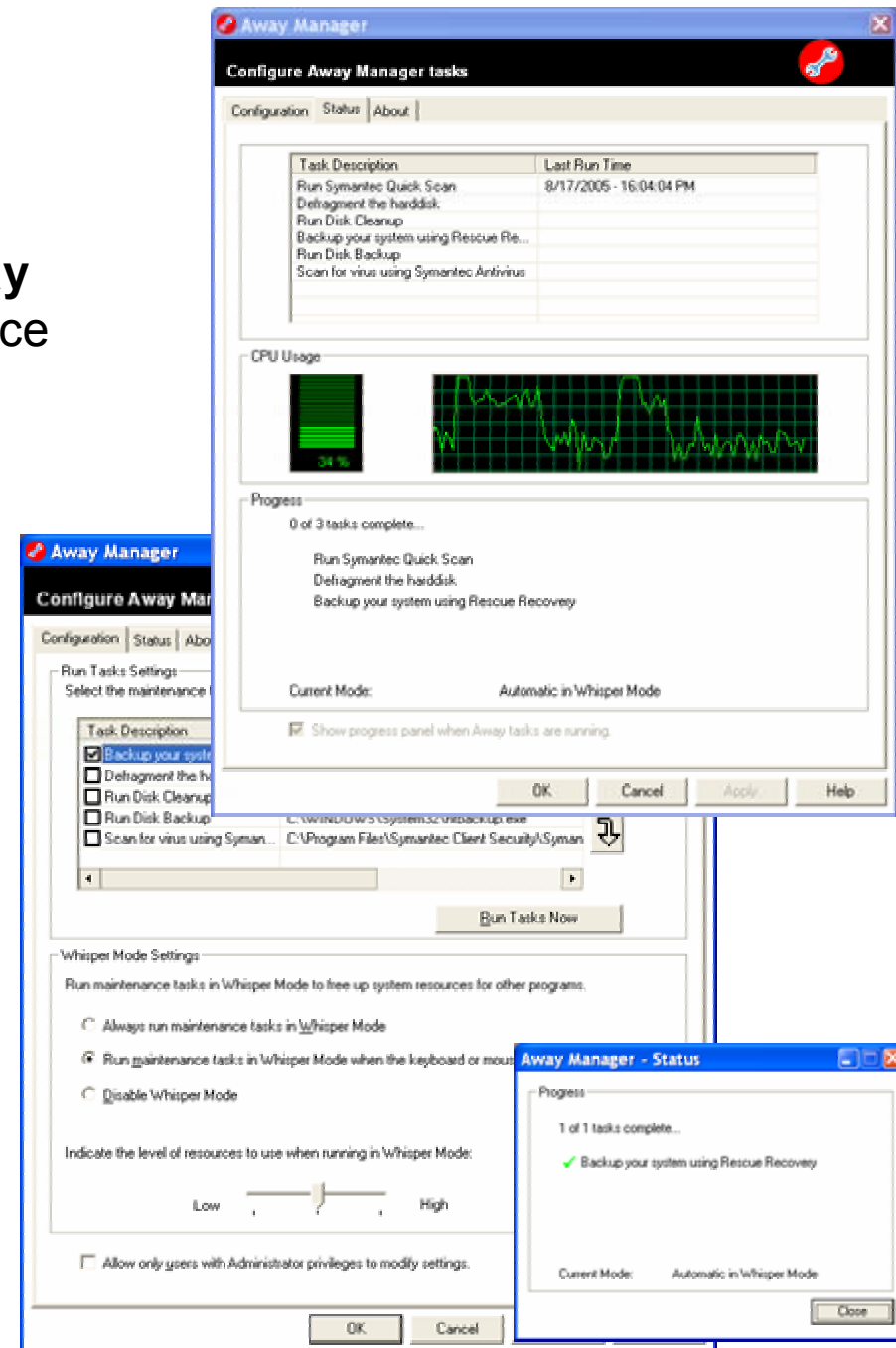
# Key Options: Smart Card Adapters
### *Make it easy to implement your preferred security policy*

**"Completes the circle" on authentication**
> What you know (password)
> Who you are (Integrated fingerprint Reader)
> ***What you have (Smart Card)***

ExpressCard Smart Card reader for ThinkPads available 1Q2006

**Provides important advantages over a dedicated slot**
> -Provides flexibility to use other peripherals in the card slot

> -Smart card technology is progressing fast. Smart Card adapters allow user to change upgrade if their technology needs change

> - Choose the slot you want to use: Lenovo offers Smart Card adapters for the PC Card slot or ExpressCard slot, so you can keep the other one open.

PC Card reader
Refreshing Dec. 2005

# ThinkPad 60 GB 5400 & 7200 rpm Serial ATA Hard Drives ThinkPad 100 GB 5400 & 7200 rpm Serial ATA Hard Drives

- For ThinkPad T60 Series, Z, and follow-on ThinkPads that utilize Serial ATA hard drives

- Use the optional ThinkPad Serial Hard Drive Bay Adapter (40Y8725) to install the ThinkPad 60 GB and 100 GB Serial ATA Hard Drives in the:
    - Ultrabay media bay in the ThinkPad T60 Series & Z laptops
    - ThinkPad Advanced Dock media bay

- 100GB & 60GB capacity available as a **capacity upgrade** for customers purchasing lower hard drive capacity ThinkPad T60 Series & Z laptops

- 7200 rpm hard drives options available as a **performance upgrade**
- **P/N 40Y8723    (60GB 5400 rpm hard drive option)**
- **P/N 40Y8721    (100GB 5400 rpm hard drive option)**
- **P/N 41N3012    (60GB 7200 rpm hard drive option)**
- **P/N 41N3013    (100GB 7200 rpm hard drive option)**

# ThinkPad Serial ATA Hard Drive Bay Adapter

- **Second Hard Drive Bay Adapter for ThinkPad T60 Series, ThinkPad Z, and follow-on ThinkPads**

- **Use to install Serial ATA Hard Drives in the:**
  - Ultrabay media bay in the supported ThinkPads
  - ThinkPad Advanced Dock media bay

- **P/N 40Y8725**

# ThinkPad CD-RW/DVD-ROM Combo II Ultrabay Slim Drive (Flat Bezel)

- VERY SIMILAR to the existing blue eject button, beveled bezel ThinkPad CD-RW/ DVD-ROM Combo II Ultrabay Slim Drive –part# 73P3288 (24x/24x/24x/8x)

- Silver Eject Button, Flat Bezel

- Slim 9.5mm form factor

- Designed for the media bay in the T60 & Z60t laptops, Advanced Dock media bay, and selected follow-on systems

- Provides fast 24X Max performance reading and writing to CD-Media

- Includes RecordNow and DLA Recording Software & WinDVD Movie Navigator Software

- Reads all five DVD Recordable formats
  - DVD-R, DVD-RW, DVD-RAM, DVD+R, DVD+RW

- Writes to CD-R and CD-RW media

- Part# 40Y8621

*Photo is for illustrative purposes only*

# ThinkPad Multi-Burner Plus Ultrabay Slim Drive (Flat Bezel)

- Improved performance and media compatibility

- Reads and writes to Double Layer and Dual Layer DVD Media

- Designed with a flat bezel for

- Slim 9.5mm form factor

- Designed for the media bay in the T60 & Z60t laptops, Advanced Dock media bay, and selected follow-on systems

- Includes RecordNow and DLA Recording Software Simple Back-Up, WinDVD Creator, & WinDVD Movie Navigator Software

- Reads & Write to all five DVD Recordable formats
  - DVD-R, DVD-RW, DVD-RAM, DVD+R, DVD+RW

- Writes to CD-R and CD-RW media

- Part# 40Y8623

*Photo is for illustrative purposes only*

# ThinkPad DDR2 Memory

- **Announcing PC2-5300 ThinkPad Memory for current and future DDR2 systems**
  - Current DDR2 ThinkPad Systems can support both PC2-4200 & PC2-5300 DDR2 ThinkPad Memory
  - Provides 667MHz World Wide RoHS upgrade Option support for current and future DDR2 ThinkPad Systems

- **Adding additional ThinkPad Memory is one of the most cost effective ways to**
  - Boost System Performance
  - Enhance Multitasking Usability
  - Extend System Useful Life
  - Ensure Complete Compatibility
  - Receive Full Warranty Service and Support

- **PC2-4200 Announced Jan 2005, PC2-5300 Announcing Jan 2006**
  - 73P3840 - **256MB PC2-4200 CL4 NP DDR2 SDRAM SODIMM (RoHS)**
  - 73P3842 - **512MB PC2-4200 CL4 NP DDR2 SDRAM SODIMM (RoHS)**
  - 73P3844 - **1GB PC2-4200 CL4 NP DDR2 SDRAM SODIMM (RoHS)**
  - 40Y7732 - **256MB PC2-5300 CL5 NP DDR2 SDRAM SODIMM (RoHS)**
  - 40Y7733 - **512MB PC2-5300 CL5 NP DDR2 SDRAM SODIMM (RoHS)**
  - 40Y7734 - **1GB PC2-5300 CL5 NP DDR2 SDRAM SODIMM (RoHS)**

*Photo is for illustrative purposes only*

- **ThinkPad Memory's stringent manufacture monitoring and precise clocking specifications minimize the possibility of data corruption to help protect the integrity of your most important and valuable commodity, information**
  - Unlike 3rd Party memory, TP Systems and ThinkPad Memory are developed together to optimize performance
  - Only ThinkPad Memory assumes the ThinkPad System Warranty
  - Lenovo supports and ensures compatibility with ThinkPad systems

# ThinkPad Z60 & T60 Series Batteries & Charger

- **Announcing in support of Z60t Series, Z60m Series & T60 Series ThinkPads**
  - 40Y6789 – ThinkPad Advanced Ultrabay Battery
  - 40Y6791 - ThinkPad Z60t Series 4 Cell Li-Ion Battery
  - 40Y6793 - ThinkPad Z60t Series 7 Cell Li-Ion Battery
  - 40Y6795 - ThinkPad Z60m Series 6 Cell Li-Ion Battery
  - 40Y6797 - ThinkPad Z60m Series 9 Cell Li-Ion Battery ( will also support T60 Series)
  - 40Y7625 - ThinkPad External Battery Charger
  - 40Y6799 - ThinkPad T60 Series 6 Cell Li-Ion Battery (Announcing January 2006)

- **Offers proven battery technology with balanced performance, capacity and longevity**

- **Designed and tested with ThinkPad to ensure safety and compatibility**

- **Back by world wide service and support combined with one year warranty**

- **Increased mobility can be achieved by recharging spare batteries out side of your system with new ThinkPad External Battery Charger**

- **Achieve All Day Computing with ThinkPad Batteries that can increase user work environment flexibility and productivity**
  *Battery life will vary based on many factors, including brightness, applications, power management, battery conditioning and customer preferences

**Announced 09/20/05**

# Secure: ThinkPad Fingerprint Reader

"Cryptographic Processor"

Stores Passwords and other authentication data in a secure environment, away from the hard drive

CSS Software provided free-of-charge to ThinkPad Owners
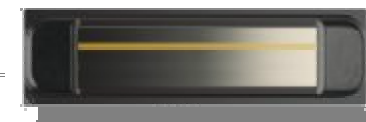
**Client Security Solution (CSS)**

ThinkPad T43

ThinkPad BIOS

BIOS Customized to provide password authentication to Power-on and Hard Drive Password

Computer is unusable without proper authentication

Fingerprint Sensor

2-Line "Swipe Sensor" takes snapshots of fingerprint and compiles complete image

Small, Inexpensive, Secure

**Provides Security and Convenience in one integrated Solution**

# Protect: Active Protection System

- Autonomic solution that helps you protect your hard drive from damage caused by shock.

- Motherboard-mounted sensor continuously monitors the movement of your ThinkPad

- Temporarily stops the hard drive when a fall or similar damage event is predicted.

- User-configurable

*Active Protection System provides up to four times greater impact protection than systems without this feature*