Mobile Docking

Information Brief

Worth remembering

- Today's innovative and modular docking alternatives allow users to configure systems to their needs and budget.
- Docking solutions range from port replicators to the ultimate in desktop equivalency.
- Port replicators provide economical cable management and system expansion, so users can easily access peripherals, such as external displays, printers and keyboards.
- The most complete docking solutions provide users the best of both worlds: full portability combined with full desktop functionality and connectivity.
- IBM offers superior comprehensive docking solutions: advanced technology, innovation, backward and forward compatibility, and expandability.

The benefits of docking

Let's imagine a scene. A busy sales professional has been on the road for several days. She comes into the office for a few hours to attend a meeting and give a presentation. As she dashes into her office with files, notebook computer and briefcase in tow, there is just enough time to put the finishing touches on her presentation. Out of the notebook case come cables and cards and power cords. It takes time to get all her components plugged in, linked together and ready to go. She finally starts work on her presentation only to realize that she needs to access a file on one of the network drives. Guess what? She's out of luck because she forgot her network card. With so much traveling, she needs a modem for the road, and a network card for the office. But what happens if that network card disappears or gets left behind somewhere? Well, scenes like this one, of course.

Now how would this scenario play out if this busy sales professional had a notebook computer with a complete docking solution? She dashes into the office, gear in tow. The notebook comes out of the case and slides easily into the docking station. She powers on and is ready to go with all the peripherals she needs. Period. The end. No time-consuming cable connection process, no crawling around on the floor to get everything plugged into a power supply. The network card is always there so she can access whatever files she needs. The necessary external devices (perhaps a CD-ROM or a second hard drive) are present and connected. There's no difficulty and no lost time.

Today's innovative and modular docking alternatives allow users to configure systems to their needs and budget. Modular design allows you to implement the components you need as a total desktop alternative, or in parts, as your demands for more functionality expand over time.

Some of the key benefits of docking include:

- Port replication/Cable management—All your components are plugged into the docking station/port replicator when you get to the office. You only have to make one connection to have immediate access to everything you need (external keyboard, monitor, mouse, etc.).
- Desktop expansion—As technology advances, new components are necessary. A docking solution that gives you slots and bays allows you the option to expand when you need to.
- Plug-and-Play convenience—Slide the notebook into the docking station and go.
- Modular design—Set up your system as you want it today, with room to grow tomorrow.
- Flexible and upgradable—Adding new components is a snap.
- Investment Protection—Lengthen the useful life of your notebook computer by giving yourself as many expansion options as possible.

The solutions available run the gamut from simple port replicators to the ultimate desktop docking stations that allow the user to add additional hard drives, SCSI, PCI and ISA devices, and much more. These docking alternatives are explained in more detail in the next section.

Docking alternatives

In the most general sense, docking solutions range from port replicators to docking stations offering full desktop equivalency. Since most of today's notebooks are equipped with one Type III or two Type II PC Card slots, basic docking gives the user some interesting expansion options. Some that leap quickly to mind: increasing capability of the notebook by adding another hard disk drive or an external CD-ROM drive.

Port replicators

Port replicator solutions come in two flavors: with and without PC card slots. Port replicators alone provide economical cable management and system expansion, which means users can connect peripherals, such as external displays, printers and keyboards. Arriving at the office, he or she can attach the notebook to the port replicator and have instant access to these devices. It's an easy, quick and efficient means of moving the notebook one step closer to desktop functionality.

At the next level, enhanced port replicators provide the user with one or perhaps two additional PC Card slots. The convenience of this arrangement is obvious: a user can keep a network card in the port replicator in the office and a modem card in the notebook while on the road. Remember the scenario described above? Something as simple and affordable as a port replicator could have taken a lot of the difficulty out of that busy sales person's afternoon, freeing her to be more productive and efficient.

IBM offers several port replicators with a range of functionality. The most basic models offer simple port replication and cable management while the most advanced offer much more, including safeguards against theft, hot/warm docking, and the capability to expand to a more complete docking solution.

Full docking

Full docking solutions offer all the benefits of port replication and more. Just as traditional desktop PCs offer a wide range of functionality, so do docking solutions. Many of your considerations should be the same when selecting a docking solution as when selecting a desktop PC. After all, your goal is to have a system that is completely functional as a desktop PC, yet offers the mobility you require. With the wide range of features that are available in docking solutions, let's take a few key words and examine their importance in your decision-making process.

Expandability

An effective docking solution should offer you the room to expand. A port replicator will give you serial, parallel, monitor and keyboard port capability, perhaps even a little more than that. But the issue here is being able to add the external devices that will make your system truly complete. Do you need a network connection when you are in the office? How about a video card for your external monitor? What about scanners, fax/modems, additional floppy drives, tape drives, CD-ROM drives? A SCSI port will allow you to connect external devices such as CD-ROMs, hard drives, scanners or other external storage devices. With PCI and/or ISA slots, you can connect devices such as LAN or video cards. And if you are moving from a traditional desktop to a mobile docking solution, you can use the PCI and ISA cards that reside in your current machine. You won't have to invest in new ones.

Flexibility

This concept is integral to the design of the ThinkPad and the SelectaDock docking solutions. Both the ThinkPad and the SelectaDock have an UltraBay, which accepts devices (floppy disk drive, hard disk drive and CD-ROM drive) specifically designed to work with ThinkPad computers. These devices can be swapped from the notebook to the docking station UltraBay when needed. The SelectaDock also has a bay that will accept industry-standard components (e.g., tape drive, CD-ROM, etc.). With a docking station like the IBM SelectaDock, you can keep up to two storage devices in your UltraBay and have those devices available when your notebook is docked. For example, you might keep your floppy drive in your notebook and have a CD-ROM drive and an extra hard disk drive available in your docking station. With a tape drive in your standard bay, you've got all your bases covered. The options are numerous.

Security

Locking mechanisms can protect the cards and interfaces in your slots and bays. You can even have a locking mechanism that will protect your whole system. Notebook PCs are easy to steal, even when they are attached to your desktop. The precautions you take in your office should equal the precautions you take when you are on the road.

Other Factors

Many systems offer additional features that might be appealing to you. MIDI/Game ports and audio in/out ports are available on some systems. IBM's new SelectaDock III[1] includes two USB ports for even greater expansion flexibility, as well as support for Wake on LAN adapters.

Port replication

Given the functionality included with many of today's notebook computers, not every user needs a docking solution, or even a port replicator. But how many times have you wished that it was easier to get yourself set up when you've been out of the office for a while? Or thought how nice it would be to use an external monitor or keyboard without feeling like you were trying to tie an octopus in knots just to get the components hooked up? If these thoughts have crossed your mind, you might be a prime candidate for a port replicator. As you think about your needs, take a look below at a list of commonly available features. You might find that you need a docking solution more than you thought.

Feature	Benefit
Cable Management	Allows for easy organization of connected cables. The user only needs to connect them once.
Quick Connection/ Disconnection	One step to connect or disconnect to peripherals.
Serial Port	Attach a 9-pin serial device cable (e.g., connect an external mouse, external modem, serial printer or two computers together).
Parallel Port	Attach a 25-pin parallel printer signal cable to connect an external printer, two computers together or external storage device (e.g., tape or hard drive).
Monitor Port	Attach an external desktop monitor when a larger viewing area is required, perhaps for spreadsheets, presentations, etc. You can run both the LCD display and external monitor simultaneously, if needed.
Keyboard Port	Connect to a full-sized desktop keyboard for those times when one is required.
Mouse Port	Connect to a desktop mouse when one is required.
Audio Out	Attach external speakers or a headphone.
Security Lock	Anti-theft key lock mechanism to protect your investment.
Security Slot	Anti-theft mechanism allows you to connect an optional cable lock for added protection.

Full Docking

Security and desktop capability do not have to be a sacrifice just because you need mobility. The new modular approach to docking solutions allows you to configure a system that meets your needs and budget while allowing for expansion. The evolution of docking solutions has made it possible to have full desktop functionality *and* mobility. The list below outlines most of the functions in docking solutions available in the market today. As you can see, a true desktop solution is no longer a dream for notebook PC users.

Feature	Benefit
Modularity	A flexible solution that will grow with your changing needs and protect your investment for the future.
Cable Management	Allows for easy organization of connected cables. The user only needs to connect them once.
Quick Connection/ Disconnection	One step to connect or disconnect to peripherals.
Serial Port	Attach a 9-pin serial device cable (e.g., an external mouse, external modem, serial printer or two computers together).
Parallel Port	Attach a 25-pin parallel printer signal cable to connect an external printer, two computers together or external storage device (e.g., tape or hard drive).
Monitor Port	Attach an external desktop monitor when a larger viewing area is required, perhaps for spreadsheets, presentations, etc. You can run both the LCD display and external monitor simultaneously, if needed.
Keyboard Port	Connect to a desktop keyboard when one is required.
Mouse Port	Connect to a desktop mouse when one is required.
Line-In Port	For recording sound bytes from external devices such as a radio, music CD or video.
MIDI/Game Port	For connection of a MIDI (Musical Instruments Digital Interface) device or joystick (electronic keyboard or game joystick).
SCSI Port	For connection of SCSI devices such as an external CD-ROM, floppy drive, scanner or external storage (e.g., Jazz, tape or hard drive).
PCI Slot	For storage and connection of 32-bit PCI devices such as LAN or video cards.
ISA Slot	For storage and connection of 16-bit ISA devices, such as LAN, modem or scanner cards.
PC Card Slots	For storage and connection of industry-standard PC Card devices including modem, ethernet, token-ring or storage cards. A PC Card is about the size of a credit card and inserts into the PC Card slot.
Storage Bays	For storage of additional industry standard devices, or the removable devices from the notebook computer itself, (e.g. CD-ROM, floppy or hard drive).
Security Lock	Anti-theft key lock mechanism to protect your investment.
Security Slot	Anti-theft mechanism allows you to connect an optional cable lock for added protection.

What is the IBM solution?

With the SelectaDock docking solutions, IBM offers an exceptional level of compatibility and investment protection. From port replication through complete desktop connectivity and functionality, these solutions allow the user to follow a natural progression of upgrades and improvements so their notebook PC provides them the best of both worlds. SelectaDock Base Model I works with many existing ThinkPads to provide enhanced port replication, including safeguards against theft, hot/warm docking, and the capability to expand to more complete docking solution. The SelectaBase 770 works with the new ThinkPad 770 to provide the same features. Both the SelectaDock Base Model I and the SelectaBase 770 are designed to work with the SelectaDock I, II and III docking solutions. To help maximize your investment, IBM continues to focus on backward and forward compatibility as it introduces new notebooks and new docking solutions.

The ThinkPad 770 also features the UltraBay II. This special ThinkPad bay features a new side-loading design that removes the need for a flip-up keyboard. It has the capacity to accept components such as a diskette drive, a second hard drive, a DVD (Digital Versatile Disk) drive, a CD-ROM drive and a high-capacity ZIP™ drive. It also features a second Li-Ion battery to double the available battery capacity.

The SelectaDock I docking station removes the need to choose between port replication or slots and bays. You can have both. It features an UltraBay that readily accepts your ThinkPad's hard disk drive, floppy disk drive or CD-ROM. It also adds a number of functions to SelectaDock Base Model I and SelectaBase 770 including SCSI-2, a shared PCI/ISA adapter slot and Plug-and-Play capability.

SelectaDock II is the next generation in desktop docking and connectivity. It provides two full-size shared PCI/ISA adapter slots and a half-size PCI slot; SCSI-2; line-in and headphone ports; two Type II or one Type III CardBus PC Card slots; space for two UltraBay storage devices and an additional half-high industry standard bay.

SelectaDock III builds on the above by offering two USB ports and support for Wake on LAN adapters. Support for Wake on LAN adapters adds a level of systems manageability to mobile products that has not been available before now.

IBM offers the ability to upgrade SelectaDock Base Model I or SelectaBase 770 to enhanced port replication. The SelectaBase PC Card Enabler offers one additional type III or two type II PC Card slots. Simply attach it to the back of the SelectaDock Base Model I or the SelectaBase 770 and increase your ability to connect to industry-standard PC Cards (i.e. Ethernet, modem, etc.). The SelectaBase PC Card Enabler uses minimum space on your desktop while providing the capability to adapt to your changing needs.

In addition, IBM's newest port replicator solution is available for the ThinkPad 380. The new ThinkPad 380 features an optional enhanced port replicator with an impressive array of features that approach full docking functionality. Two PC Card slots, parallel, serial, monitor, audio and MIDI/joystick ports make this port replicator one of the most complete on the market.

Many manufacturers offer docking solutions to go with their notebook PCs. But before you choose a vendor, you need to ask yourself some questions. How safe is my investment? Will I be able to upgrade easily? Is the technology used the best around? What features does this solution offer and what features do I *need*?

Many notebook systems can reach desktop equivalency with the IBM SelectaDock Base Model I and SelectaDock I, which provide a modular approach to docking, an industry first. Base Model I offers cable management, and it works neatly with existing ThinkPads that dock with the IBM Port Replicator I. It shines, however, when combined with SelectaDock I or II.

Protect your investment

When we began developing our line of SelectaDock solutions, our goal was to provide a line of products with almost complete forward and backward compatibility, an industry first. With the introduction of SelectaDock, IBM did just that. Now, concern about whether a notebook will work with a new docking station (and vice versa) is minimized. Even now, when you purchase a new ThinkPad 770 and it's unique SelectaBase 770 port replicator, you can be sure that they will work with your existing SelectaDock solution.

Additionally, for users who are not sure what level of docking they need or expect their needs to change, we again have an answer. Start out with the port replicator designed to work with the ThinkPad you purchase and you'll get port replication and cable management. Then, if your needs change and you require slots and bays, just add a SelectaDock I, II or III docking station.

Compatibility

You've made a big investment in a notebook or docking solution. Why should you have to upgrade the whole system every year or two just to keep up with technology? If your solution is flexible enough, you can expand and grow your system without having to trade up every couple of years. You should be able to use your current notebook with new docking solutions or your existing docking solution with new notebooks. IBM docking solutions offer just this kind of compatibility.

Innovation

IBM is a leader in desktop and notebook solutions, across the board. Our research and development division files for more patents than any other company in this industry. The technology that we have developed and propagated has been adopted throughout the industry (screens, keyboards, our TrackPoint pointing device, etc.). And wouldn't you feel more secure doing business with the company that knows the technology backwards and forwards because they developed it? Lastly, IBM is not just a notebook manufacturer. We offer an amazing range of products and services that can help any size business or individual. It's simply not enough to provide you with a piece of hardware; we are committed to delivering a solution that addresses all your needs. And that's a promise we can live up to.

For More Information

For information via the World Wide Web	www.pc.ibm.com/thinkpad
For product and dealer location information	1 800 426-2968
To access the IBM PC Company Bulletin Board	1 919 517-0001
For product information sent directly to your fax machine	1 800 IBM-3395 (1 800 426-3395)
IBM ThinkPad Information Directory	Doc #11078
IBM PC Product Guide Directory (to specific sections)	Doc #12745

[1] Requires the SelectaBase III option.

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