IBM Workpad z50 Review

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IBM isn't exactly a name you associate with Windows CE, let alone the PDA market. However, sure enough in May 1999 they dipped their big (blue) toe into the Windows CE market with the release of the IBM Workpad z50 PC Companion.

The z50 was aimed squarely at the enterprise market to provide a mobile extension for users away from the corporate desktop. The z50 fundamentally is positioned in the market place to live up to its form factor as a sub-notebook (sub-note) device, and almost entirely dispels from the idea of it being a PDA.

The z50 wasn't IBM 's only foray into the thin client / PDA model. The z50's sister devices, the Workpad 30x and c3 range were built around Palm OS in a pocket sized form factor. The Workpad remains the only IBM Windows CE device to be released. This is rather strange for a company, whose corporate homepage boasts a special mobile version, automatically displaying by default to any mobile device that happens to request IBM.com.
The z50's reign ended in February 2000 when IBM announced the immediate discontinuation of the line, and completely exited from the Windows CE platform altogether.

So What Do You Get With The Z50?

- A Windows CE 2.11 based, Handheld PC 3.0 Professional sub-notebook
- MIPS 4100 CPU running at 131MHz
- 16MB System RAM
- 16MB System ROM
- 640x480 (VGA)
- 16-bit colour graphics
- DSUB connector for external monitor up to 800x600 (SVGA)
- Serial
- Fast Infrared (FIR) port
- 33.6 Kbps modem
- CF & PCMCIA slot
- Integrated speaker
- Headphone and Microphone jacks

The z50 itself is certainly loaded with Hardware features, which can put a lot of other Windows CE devices - even later HPC2000 devices to shame.
The first time you see a z50 you will immediately think "Thinkpad". The device bears an uncanny

resemblance to its mainstream cousins - even the modern day models. Sporting a chassis design synonymous with any IBM notebook PC the Workpad z50 was designed to seamlessly and inconspicuously fit into the IBM design ethos and not add any Windows CE eccentricity to the image of flagship line.

Whether or not you are a fan of the aesthetic looks of the IBM notebook range, they are the indisputable king of the build quality stakes. In this regard the z50 is certainly no exception.

The chassis has a sturdy, rugged feel to it sporting a port layout that would easily protect the crucial I/O hardware from all but the most fierce of knocks or falls. The hinge mechanism on the screen is firm and fluid with a 180-degree field of motion allowing the device to be placed onto a projector.

The screen itself is well featured by a large contrast range, allowing you to set the overall contrast anywhere between completely white and completely black. The screen is fairly bright in most light conditions and the screen surface does a good job on cutting down on reflections.

If anything the built in screen is let down by its overly conservative use of the physically available area in the screens housing. The physical dimensions could have comfortably been enlarged up to at least 7cm wider and 4cm higher (roughly 3"x1.5" for users used to imperial) making a native resolution of 800x600 a distinct possibility without increasing the footprint of the z50 or causing serious complications for the screen control buttons, hinge or lid clip.

The older DSTN technology is noticeably slow when input is limited to a mouse, with the fast movement of the cursor causing both the pointer to almost vanish as the screen struggles to redraw, and overly vivid colours causing the bleeding or ghosting which is synonymous with Dual Scan LCD displays you will notice it, but quickly get used to it.

Aside from the large boarder, for what the average z50 user will ever use the device for; the screen is more than adequate. The older technology combined with well thought out power management design - which allows for the no nonsense brightness/contrast control, backlight dimming and the ability to sense when the display is closed and opened - enhance the functionality of the z50 with thoroughly excellent battery performance which is really where a sub-notebook device like the Workpad excel in the marketplace.

If the concept of an older model sub notebook Handheld PC is appealing to you, then chances are you are a writer, or have a job where you need to type notes and minutes for extended periods of time. Quite simply a laptop PC just wont cut it. Clamshell devices while offering the compactness will probably be to small for sustained data entry and you are looking for that happy medium of communications, battery life and PIM that Windows CE is frequently able to boast over the competition.

With regard to battery performance the z50 is frankly superb. Not just in how long it can last - all Handheld PC's have long battery life times; you already knew that. however it is in IBM's dedication to providing z50 users with robust and functional solutions that makes the z50 stand out.

There are 5 available power sources for the z50.

Backup battery - The backup batteries in the z50 aren't your ordinary CR2032 coin cells, they are in fact run of the mill AAA batteries. The z50 takes two of them, with the compartment accessible on the base, with a oversized screw head, the likes of which in an emergency you could get into using the end of a key. It's simple, but given that it's easy to get to and uses batteries you wont have to hunt around for, it could be the difference one day between lost data and salvation.

Standard battery pack - The standard battery promises to offer up to 8 hours of battery performance.

Extended Battery - In the extended battery test conducted by Microsoft's Windows CE division state up to 16 hours of battery time, double the life but double the width of the standard battery. Additional weight gained from using the extended battery is negligible.
Finally on the battery front an idea which heralded from the earliest of Handheld PC devices.

The AA battery power source or Dry Cell Kit - The Dry Cell Kit comes as part of the Extended battery package. Requiring 8 AA (LR6) batteries and taking up the same area as the extended battery, the AA battery pack may seem excessive. However if there comes a time when you need it, you will you have it. What with the cheap availability of high rating, low cost AA batteries, there is a degree of future proofing provided through the module that makes ownership of the z50 that bit more comfortable. After all, AA batteries have existed since the dawn of time right?

Lastly of course there is the dual voltage **AC adapter**, designed to allow you to take the z50 anywhere in the world and charge back up.

Anyone who is looking at the z50 for data entry will, no doubt be thinking in terms of getting very acquainted with the keyboard. For this regard, again the build quality of the IBM shows through, with a firm, well spaced out, 95% size keyboard. I found that a typing rate very similar if not equal to that I can get on a good full size keyboard, with the only problem I had being the odd accidental nick of the mouse or the alt key. Ordinarily on a Windows PC this wouldn't be a problem but under CE this automatically brings up the primary menu (usually 'File') of the application you are currently working it, thus interfering in your train of thought while you flick it out of the way with the mouse or alt key.

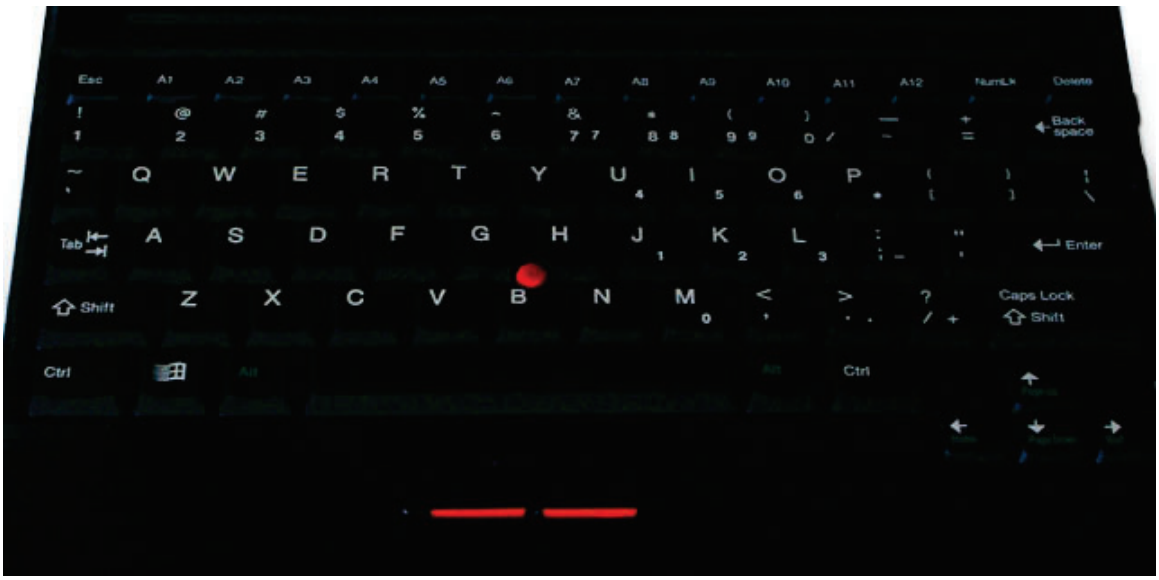

Figure 5: The IBM Workpad z50's near full size keyboard

The main typing keys themselves are full size, configured in the US English style (The Workpad only being available in North America us UK importers have no leg to stand on because the pound sign is missing). The US keyboard layout does pose us a problem though. The z50's keyboard, while having an integrated numeric keypad available on numlock, doesn't support the input of hexadecimal character code to insert additional characters, something to consider if you need to input a lot of non-Roman English characters.
Along the top row of the keyboard, there is a set of keys, which will quickly strike you as out of place on any CE device - As they look suspiciously like F keys. IBM in a moment of brilliance have opted to call these keys the A keys.
Originality aside, they are all in all rather cryptic. Until you nervously push one for the first time to discover that they are nothing more than a set of programmable quick launch keys.
Somewhere buried in the box is a set of customisable stickers, which you can attach along the hinge cover moulding to provide a graphical prompt as to the key functions. As with hp devices the keys can be customised through a control panel applet to point to any .exe or CE shortcut you desire.

When looking at the keyboard, you can't escape the imposing red blob that is the stereotypical IBM trackpoint.

This is something you will either love, or you will loath.

The z50, unlike the vast majority of its Windows CE counterparts lacks a screen digitiser - better known as a Touch screen.
As a long time H/PC Clamshell user, this can take a surprising amount of time to get used to, as you naturally associate Windows CE with "Tap here" rather than "Click here".
Despite some suggestion to the contrary on web searches, I have found no drivers on the device to suggest that it is able to take an external mouse. Which for me, someone who is naturally repelled by the thought of having to use a trackpoint 'dot' mouse has been something of a letdown. Even through the optional cradle - which adds nothing more than a single action drop & dock connection point to the host PC - there is no facility for the addition of an external mouse or keyboard.

To make up for this shortcoming (if indeed you consider a trackpoint such) the z50 doesn't stop there. Along the right hand edge of the unit are two hinged rubber flaps, which fit snugly into the recess. Pull them away to reveal the presence of the serial port (a proprietary connector) and a VGA DSUB port allowing for the connection to an external monitor, or even projector.
Connecting to an external screen is a simple process. Just plug in the screen and using the IBM

'Rapid Access' program you can switch between dual mode display on both the LCD and external device. Or just have the internal screen for 'Power saving mode'. Through experimenting with this, there is no way to display dedicatedly on the external screen using Rapid Access, although we were able to work out how to achieve this through manipulating the registry (See associated CESD article). The process of using Windows CE on an external screen does put a new light on the platform. The z50 documentation states that on an external screen the device can output at 800x600 up to 75Hz refresh rate. Alas I have as yet been unable to get it to output and anything other than the default 640x480 at 60Hz. XGA (1024x768) output is not supported even though the z50 contains sufficient dedicated video RAM.

Figure 6: The Left and Right sides of the z50

Lastly down the right hand side is the Handheld PC synonymous Infrared lamp - an unusual 4Mbps FIR implementation exists on the z50, although you will need third party IrOBEX software to make use of it at 4Mb. - and the CF Card slot, supporting both Type I and II cards, with an easy to access eject button it, like its PC Card slot on the opposite side is well positioned.

Spanning the thin profile of the left hand side of the z50 are PC Card, Headphones / Mic sockets and the analogue modem. The PC Card slot is billed as supporting Type I, II and III PC Card's; clearly whoever stated the idea that it could support a type III card, while accurate from the perspective of the system bus. Has never seen a Type III PC Card. If they had, they would have known that a type III wouldn't physically fit into a standard type II proportioned slot.

Intriguingly there is also a covered over moulding in the side of the z50, which looks auspiciously like that of a Smart Card reader. As IBM were known to customise the devices on request for large corporations, there could well be versions of the z50 out there equipped with Smart Card readers.

Once again, some thought has gone into the sound system on the Workpad. The build in speaker is crisp and has substantial gain on it. Although this can be a problem when it tends to jump up again after soft resets, and there really isn't a comfortable quiet environment headphone level on it for listening to music.
The device supports an external microphone, opening up another possible area of continued use for the device. Journalists.
Cleverly IBM has integrated two quick access buttons that can be accesses both when the screen is open and when it is closed. The first is simply to discard a system alarm without having to open up the device, power up and cancel it - most useful in its own right. The second button is for the voice recorder.
Push once while the z50 is on or off, and the screen open or closed and the device will launch voice recorder and begin recording automatically. When the screen is closed, the integrated Mic is also exposed similarly to the quick access button.

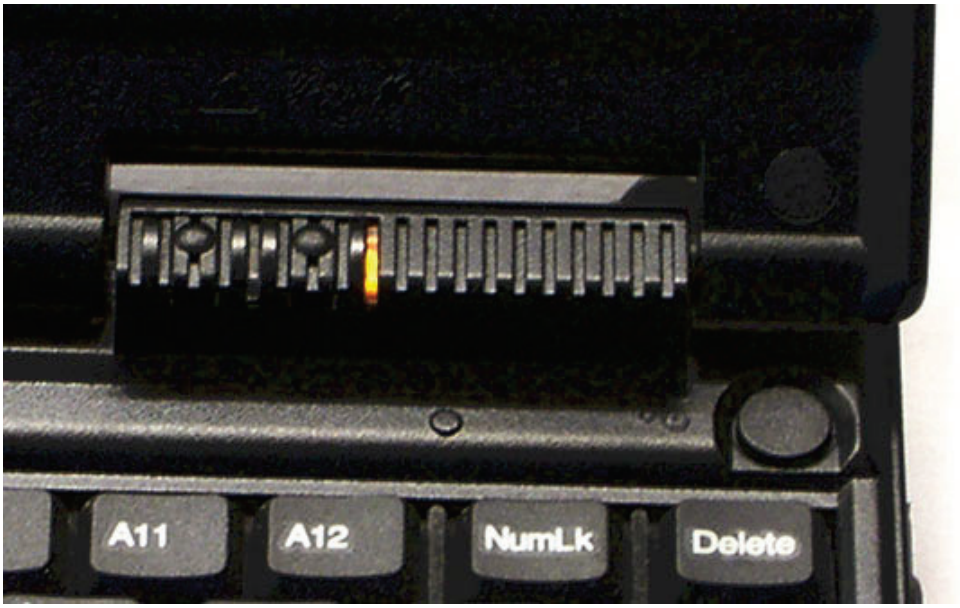

Figure 7: The quick access buttons and charge LED

For Dictaphone use this could be invaluable. For a journalist (especially in conjunction with an external mic and a large flash card or Microdrive) the quality of the integrated mic is surprising clear, with a good range and sensitivity. Bring together this and the one touch access and this could be enough to sell the virtues of the z50 on its own.

The last visible feature is that of the integrated 33.6 Kbps modem. While not holding a hat to the more familiar LAN and Wireless LAN technologies which most of us are starting to use today with broadband Internet. To send the odd email, or fax using the bundled bFax Professional. This is adequate.

Performance is the area where the z50 does start to show its age.
If you are looking at the z50 for the reasons by which it was intended, you wont have any problems at all with it. However, if you are a PDA power user who demands a lot from their hardware the z50 probably isn't for you.
It is let down by an often sluggish 131MHz MIPS 4100 chip, which for whatever reason on the review device seemed to under perform when compared to similar CPU's in other devices.
Music playback through Windows Media Player of Hum is fine, however under HPC Pro the idea of any sort of video has to be forgotten, likewise any of the more CPU intensive games which exist out there - such as the Doom clones do not handle very well on the system.
Had IBM opted to do what at the time would have been deemed as radical and gone with a SA1100 StrongARM processor this would not have been a problem. If they had I can surmise that IBM may well have offered a physical ROM Chip upgrade (accessible through a secure base plate) to HPC2000 when it was release in 1999. Unfortunately despite the replaceable chip, no update was ever offered, even an update to the more refined and faster Handheld PC 3.01 Professional release.

Despite the occasional sluggishness - which again I stress if using the device for what it was originally intended, you wont have much of any problem - I am of the opinion that the z50's ROM wasn't correctly optimised before it we built into the final release image.
There are one or two tweaks that you can make to it to substantially improve performance through general use (which HPC:Factor will document in the CESD for reference of z50 users).
Performance can also be improved through the addition of a 32MB RAM upgrade that is available separately, bringing the total RAM count up to a healthy 48MB. This will comfortably allow any user to install the likes of TextMaker or PlanMaker (thanks to the MIPS CPU choice over Super-H) if they need the extra power provided through the Pocket Office replacements.

When it comes to the software bundle, IBM has been a little light on the ground, mainly due to the firm belief that the device was squarely for large enterprise. Along side the default H/PC Pro suite. IBM have installed bFax Professional, bPrint and bUseful Backup Plus. The product CD is again a little light on the consumer goodies with just the IBM Mobile Connect client and Global Network Dialler (see below) joining HTML documentation and Windows CE services (All users should install ActiveSync 3.x) on the disc.

The IBM Mobile Connect client, demonstrating the enterprise product targeting allows synchronisation with IBM Lotus Notes Domino servers or Microsoft Exchange servers, an application which predates the Microsoft implementation of Exchange server synchronisation for the Windows Mobile Platform in 2003.

IBM Global Network dialler is a PPP dialler application for both the host system and the Handheld PC device which allows you to use the built in modem to dial up to the Internet, access IBM global network services as well as providing a layer for accessing secure Intranet resources through RADIUS.

When release. The z50 had a street price of $1000 USD. Given that this article is a flash back review and looks at the z50 from the perspective of the 2005 market. It is safe to say things have changed drastically.
While discontinued, IBM does provide telephone technical support for the device, and have world-wide support numbers available for travellers. Despite this the documentation on the site is poor. If you can pick up the z50 with the paper manual or original CD's, all the better as there is no PDF version of the manual available.
When it comes to downloadable updates, IBM along the lines of providing ROM updates has been very slow to respond. There being little in the way of patches to install to correct some of the IBM software which could use attention - even back when it was released.
The z50 isn't the most common of Windows CE devices, meaning picking one up second hand could be easier said than done. Despite this the z50 1.2 kilogram, mouse mat size sub-note is well worth searching for and will easily find a place in the technological hearts of many users.

In conclusion the Workpad z50 is a very well planned, robust device that performs exceptionally well at what it was designed to do. While it wont appeal to the power user or the new generation of multimedia a la Windows CE fans. To anyone looking for a low cost, functional and crucially reliable device to extend their productivity while in the field or just while travelling from A to B. The z50 is certainly one to look out for from both the second hand and stock clearance markets.
With a low second hand price range on sites like eBay, purchasing additional batteries and - for the user who needs more - some of the excellent third party office productivity software which goes hand in hand with Windows CE in the 21st century. Makes the z50 a much more attractive option than

having to spec up a full-blown laptop or struggle with foldable keyboards and the inconvenience of other pocket sized PDA devices.

Note: This is a HPC:Factor flashback article. System Requirements and ratings are based on the device as it exists at the time of reviewing and not at the time of original release.

System Requirements:

Windows 95, 98, 98SE, Millennium, NT4, 2000, XP, 2003
18MB Hard disk space for ActiveSync
Windows CE Services 2.2 or above (ActiveSync 3.8 recommended)

Buying Resources

IBM Workpad z50 on eBay

IBM Workpad z50 on Amazon

Search for IBM Workpad z50 at UsedHandhelds.com

More information on IBM Workpad z50 can be found at
http://www.ibm.com/

Ratings

Cost:	■■■■■
Usability:	■■■□□
Built-in Help:	■■■■□
Customer Service:	■■□□□
Overall:	■■■■□

Pros: Excellent keyboard

Cons: H/PC Pro is showing its age

Further Discussion

Let us know what you thought of this review and the IBM Workpad z50 in the Community Forums!

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