



USB 2.0 & Windows Printing and Imaging

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Windows Support for USB 2.0



<i>Windows Version</i>	<i>On Product CD</i>	<i>Windows Update</i>	<i>Service Pack</i>	<i>OPK Supplement Release</i>
Windows .NET Server	Yes	n/a	n/a	n/a
Windows XP	No	Yes	Windows XP SP1	Yes
Windows 2000	No	Yes	No	Yes
Windows 9x / Windows NT 4.0	No	No	No	No
Future versions of Windows	Yes			

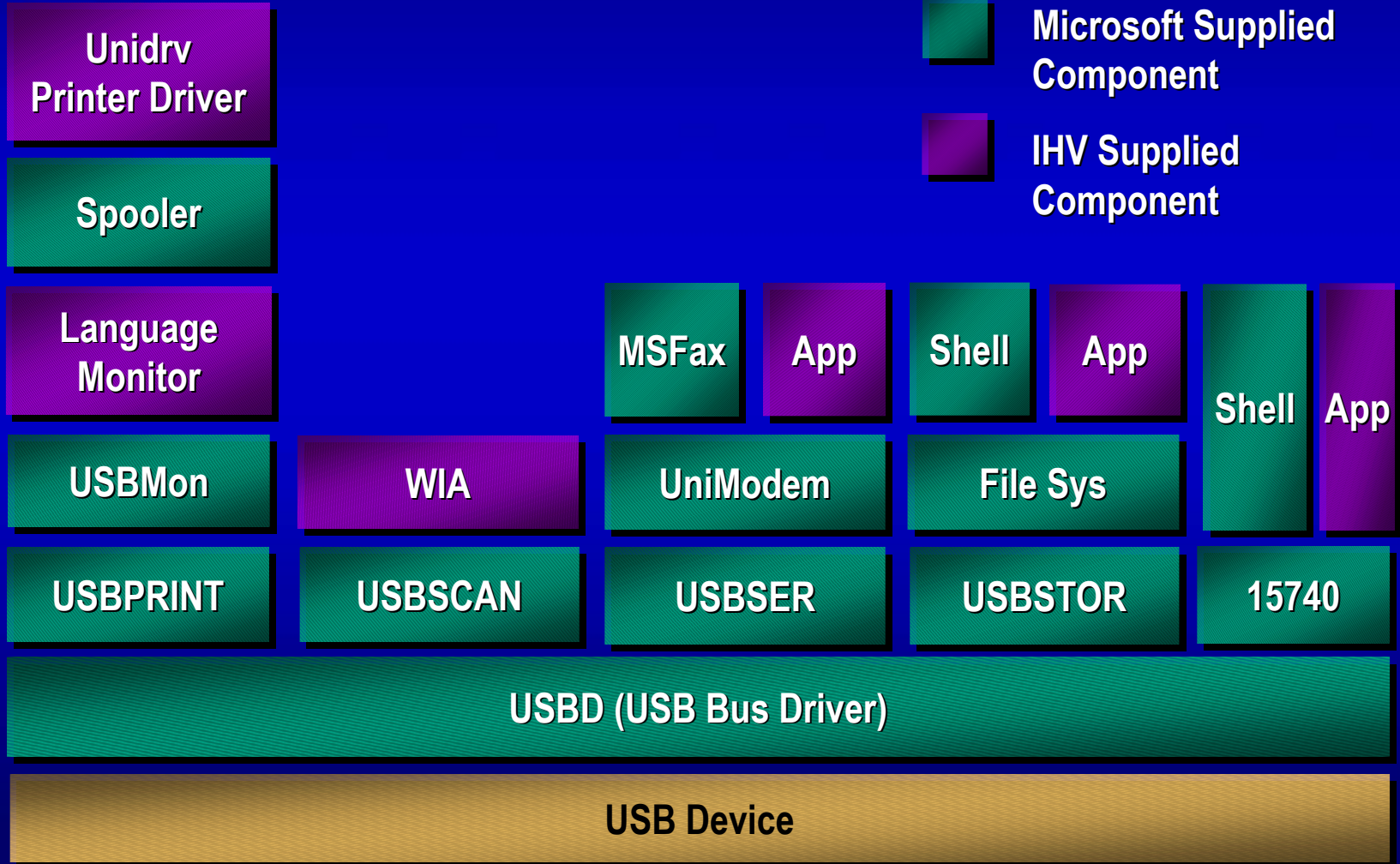
USB 2.0 and Printing/Imaging



- ▶ USB 2.0 printers in development
- ▶ USB 2.0 scanners in retail channels
- ▶ ISO 15740 cameras natively supported (USB 2.0 devices in the lab)
- ▶ **Death knell for 1284 port – cut support costs!**
 - No more legacy!
- ▶ Seamless support in Windows XP & Windows 2000 – it just works!
- ▶ USB = Reduced development time and support costs – use our class drivers!
 - Tested across multiple OS's
 - Conforms to Designed for Windows guidelines
 - They are free!



USB Stack Overview





Windows XP and USB Demo

- ▶ **Popup bubbles in Windows XP**
 - Bandwidth
 - 5 levels of hub depth
 - Insufficient power on port
 - USB 2.0 recognition
- ▶ **Auto-launch on device plug-in**
- ▶ **Example: storage device**

USB Cameras and Windows



ISO 15740 **(Picture Transfer Protocol)**



- ▶ **Common communication mechanism for exchanging images with and between digital still photography devices based on USB**
- ▶ **Doesn't define device discovery, enumeration or transport aggregation methods**
- ▶ **Enables driver-less, common support for all 15740 digital cameras in Windows Me and Windows XP today**
- ▶ **Rich eventing mechanism: Host can tell camera to take picture, automatically update the clock on the camera, etc...**
- ▶ **In Windows Me, Windows XP and beyond...**



ISO 15740 (...cont'd)

- ▶ **If you develop for still image devices, ISO 15740 is THE way to go!**
- ▶ **Benefits:**
 - **No need to invest in driver development**
 - **Differentiate your customer's experience**
 - **Driverless setup and access within Windows**
 - **Transparent support for USB 2.0**
 - **Advanced feature offerings**



15740 Camera Demo

- ▶ Nikon CoolPix 2500 digital camera
- ▶ Released in February 2002 – 7 months after Windows XP RTM
- ▶ ISO 15740 enables device to “just work” - no drivers, no hassles
- ▶ Pictures on device are treated as “objects”, not files in a mass storage system as in MSC

***So... are you more
than a toaster?***



USB-based MFPs – Design Goals



- ▶ All major functions should have a separate interface – composite device
- ▶ Should be compatible with Plug and Play
- ▶ Aim to support hibernation, standby and resume
- ▶ Composite devices likely to be a WHQL requirement moving forward

USB MFP Design Goals **(...cont'd)**



- ▶ **Legacy devices using single interface I/O – this is a bad approach - use USB composite model!**



USB 2.0 Scanners

- ▶ **Hi speed data transfer from scanners**
 - Alternative to 1394
 - Write one driver – regardless of transport
- ▶ **As CCD quality, and number of pixels/color depth increases, image and data size significantly increases**



- ▶ **CanoScan D1250 U2F USB 2.0 scanner, with simultaneous mass storage bus traffic**



Call to action

- ▶ **Microsoft is behind USB 2.0 – offering support in Windows 2000, Windows XP, Windows.NET Server and beyond**
- ▶ **Use Microsoft class drivers**
 - ...and tell us if something is missing!
- ▶ **Digital cameras: Use ISO 15740/PTP**
- ▶ **MFPs: Composite device rules**
- ▶ **KISS! And engage early - we are here to help you!**

Thank You!

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