Windows Input.AI Team

Building Windows input devices...
Touch, Pen, Precision Touchpad, Gaze, Keyboards, Mice, and more!

With a rich, powerful platform...
Ink Rendering, Gestures, Recognition, Text Predictions – Powered by AI

Across all form factors and SKUs of Windows!
Desktop, Mobile, Whiteboards, Xbox, HoloLens, IoT
Introduction and Agenda

Session Introduction
A brief update on the latest input innovations in the Windows ecosystem.

Session Agenda:
Precision Touchpad (PTP) & Windows Eye Control
Microsoft Pen (MPP)
Partner Presentations
Windows Ink
PTP & Eye Tracking
PTPs are now the de facto standard for touchpads on Windows
Starting with the Windows release after 19H1, every Windows touchpad is a Precision Touchpad
Windows Eye Control

• Eye control enables customers to control their PC with *only* their eyes on Windows 10

• Windows now includes built-in support for eye tracking hardware (eye tracking HID standard + Windows APIs)
Microsoft Pen (MPP)
Microsoft Pen Protocol Program

- Off-the-shelf solution for Windows Ink compatibility
- High quality, power-efficient, affordable pens
- All pens/devices that speak the Microsoft Pen Protocol work together!
Great Supply Chain, Great Choices!

Microsoft Pen OEM Partners

Microsoft Pen Touch Controller Partners

Microsoft Pen Peripheral Partners
Solutions Across All Price Points

MPP Low Cost
- Most affordable digital stylus
- Designed with education in mind

MPP Standard
- The standard for pen quality
- Natural rendering with pressure

MPP Pro
- Powerful, expressive with Tilt
- More accurately captures the details of your stroke
MPP Low Cost

• Making digital pen as accessible as analog is a challenge
  • Pen cost can be high for bundling or replacement
  • Users concerned about breakage, lost pens
  • Customers in education have tight budgets

• MPP partners now offering affordable solutions
  • Additional tip reinforcement
  • AAA battery option
  • Industrial design optimized for cost
  • Additional cost savings available for EDU
MPP for Touch Display Integration

- Extends features of MPP Pro to enable more sensor technologies and screen sizes
  - Tilt, 4096 pressure levels, etc.
- Technology licensing program available later this year
Joe Yeh
EVP – ELAN Microelectronics
ELAN’s MPP-Enabled IC Solutions

- Pen Protocol
- MPP 1.51 to MPP 2.0
- Gen 6 to Gen 6+
- Screen Size
- 10.1” to 17.3”
- Resolution
- HD, FHD, WXGA, QHD, UHD
- Stack Ups
- GFF, OGS, OGM, MM, On-Cell
- Customers
- Acer, Asus, Dell, Fujitsu, HP, Lenovo, Microsoft Surface
Industry Leading Pen Latency

Gen 5
- Pen Move Latency: ~28.65ms
- Pen Down Latency: ~33.27ms
- SP&T

Gen 6
- Pen Move Latency: ~22.52ms
- Pen Down Latency: ~31.29ms
- SP&T

Gen 6+ & MM
- Pen Move Latency: 12.40ms
- Pen Down Latency: 9.53ms
- SP&T

Gen 6+ with Windows Ink Acceleration = 27ms E2E

*Above photos are for illustration*
Demo

ELAN Gen 6+ (Surface Go) ➔ Low Latency Ink
Offerings Across All Price Points

**Gen 6**
- Part #: 6315 and 6318
- SP&T

**Gen 6+**
- Part #: 6612, 6615 and 6618
- SP&T

What comes next from ELAN
Nobu Ide
CEO - Wacom
Wacom UPF (Universal Pen Framework) partnership

- UPF partnership with controller IC and Display partners.
- Universal pen experience for customers
  - across Displays & Touch (out-cell, in-TOUCH, In-cell, on-cell, OLED...)
  - across Platforms (mobile, Tablet, NB, A.I.O., IWB...)

BAMBOO™ Ink ×
Wacom delivers “universal pen experience”

• The world first experience with “Bamboo ink” next gen.
• Universal pen experience across Windows eco-system.

➢ Tilt Detection
➢ Feather touch pressure sensing
➢ BT connection / Re-chargeable battery
➢ Triangular ID with soft touch

➢ AES2.0 / AES1.0 / AIT in-TOUCH / WGP
➢ MPP1.5 / MPP2.0
Demo

Wacom Bamboo Ink → Next Gen
Wacom’s value proposition to Windows ink 2019

- **G14T** new gen. Touch IC with drastic upgrading SNR
  - Single digit device latency
  - Supporting Multiple pens use case

- **Entry level pen solution** (G14TS and Wacom standard pen)
  - Supporting basic pen experience with optimized cost

- **Multi-protocol pens** across Displays : in-TOUCH / in-cell with AES pen ready

- Large size solution : **A.I.O. to IWB** size
Latest MPP Offerings
Latest MPP Pro Powered Touch ICs

- Available Now -

- Mass Production in 2019 -
Latest MPP Pro Powered Pens

- **Waltop**
  - TCS-007
  - Available Now

- **Hanvon**
  - MS096V200
  - Available Now

- **Maxeye**
  - ME-MPP503
  - Available Now

- **Sunwoda**
  - SPEN-MDP-001
  - Available May 2019
Windows Ink
The Ink flywheel

Compelling experiences
to make you pick up the pen, and continue using the pen

Engage more users

Ink Applications
powered by a rich platform

Generates demand

High quality pen devices
at all price points

Creates sockets

Shared under NDA

©2018 Microsoft
Windows Ink Drives Engagement

More creative, more productive

- Windows Ink
- 3D in Windows 10
- Microsoft Office
- Cortana
- Microsoft Edge
- Faster to done

Mainstream 2-in-1 purchase intent when shown new scenarios

- 50% growth in engagement YoY
- 2nd in purchase intent

Pen
- Processor/Ram/Storage
- Switch Storage from HDD to SSD
- Increase screen resolution
- Windows Hello

Battery Life
Windows Ink Drives Engagement

50% growth in engagement YoY

50%+ apps support Ink Acceleration

2nd in purchase intent

Millions of new MPP pens and devices

More creative, more productive

Windows Ink

3D in Windows 10

Microsoft Office

Cortana

Microsoft Edge

Faster to done

Gaming

Handwriting & Notetaking

Browsing & Navigating

Sketching & Painting

More creative, more productive
Latest Windows Ink Apps
“I use Concepts more than any other tool. I absolutely love it. The natural, fluid, vector-based workflow is so easy to use, but incredibly powerful. The technology never gets in the way of creativity. The fast and clean user experience makes it a joy to use.”

– Yarrow Cheney, production designer, film director
Demo

Concepts
Penbook

The nicest freehand writing experience for Windows 10.
Demo

Microsoft PowerPoint ➔ Ink to Diagram
Microsoft Tidify
Handwriting

Simply tap and write directly into any XAML text controls

Candidates appear while you write and linger briefly after a word is recognized.

Commit your text when you finish writing.

Input ink directly into the control.

Handwriting is automatically converted to text when it is recognized.
Coming Soon!
Demo

Microsoft Mail UWP ➔ Handwriting
GPU Ink Acceleration

- Windows Ink is faster than ever!
  - Using the latest in modern GPU tech to make ink rendering as fast as possible
  - Supported with ballpoint and pencil brushes
  - Additional chipset support coming next release with WDDM 2.6 compatible drivers

Available Now

Coming Soon!

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Pen ID

• Enable the future of cross-device and multi-pen input
• Reporting Pen Identity to Windows
  • Transducer Serial Number
  • Transducer Vendor ID
• More details coming soon!
Resources

• Implementation Guides – aka.ms/DigitizerGuides
• Windows Ink APIs – aka.ms/BuildWindowsInkApps
• Tidify – aka.ms/InkLayoutSample

Join the MPP Ecosystem!
MPPonboarding@Microsoft.com
Please Complete An Evaluation

Your input is important!

You will receive an evaluation form via email!
Thank You!