

# 恩智浦微處理器於電競鍵盤、 滑鼠、耳機三合一方案

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DECEMBER 22 2020



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# AGENDA

恩智浦微處理器概括介紹及適用於電競週邊的產品組合

世平集團於電競週邊整合方案及市場未來藍圖

# 恩智浦微處理器概括介紹及適用於 電競週邊的產品組合



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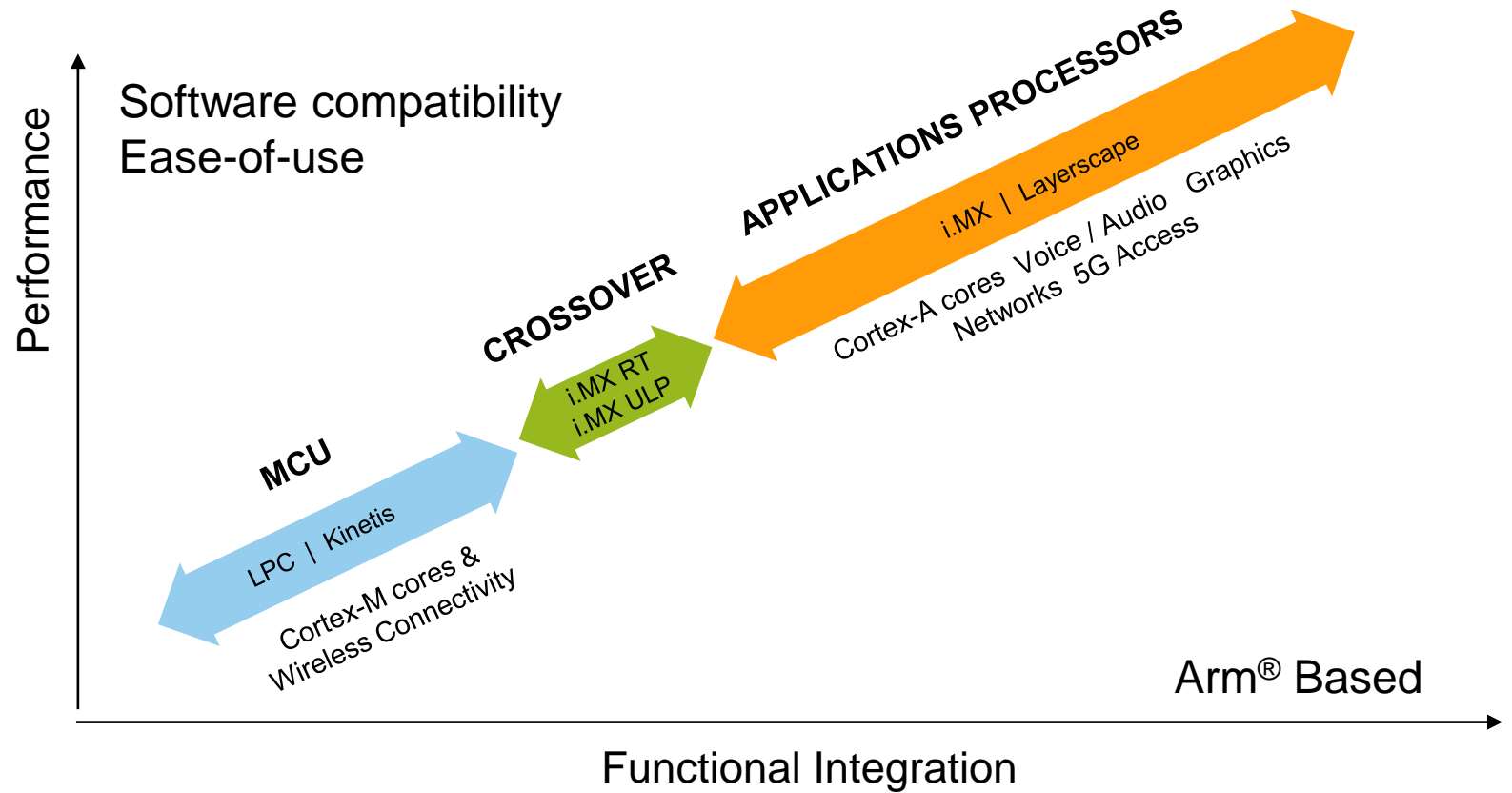
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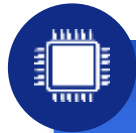




# SCALABLE EDGE PROCESSING CONTINUUM



# NXP'S ARM® CORTEX®-M AND FOCUS MCU PORTFOLIO



Performance & Integration

**i.MX RT Crossover MCUs** for Ultimate Real-time Performance & Integration



Performance Efficiency

Kinetis K, LPC54000 MCUs & *Introducing* **LPC5500 for Performance Efficiency**



Power Efficient

Kinetis L & *Introducing* **K32 L MCUs for Cost-, Power- sensitive Applications**



Value

**S08 (8-bit)** and **LPC800 (32-bit)** MCUs for Entry-Level Applications



Robust Industrial MCU

**KE (Industrial)** for Safe and Reliable 5V MCU Applications

**DSC/KV** for Motor Control & Digital Power & **KM** for Metering Applications

NXP has decades long experience and a longstanding track record of [providing continuity of production supply](#) of our MCU products. Visit [www.nxp.com/productlongevity](http://www.nxp.com/productlongevity) for the complete list and details.

# NXP LPC5500 MCU SERIES HIGHLIGHTS

## Main Highlights of LPC5500

- World's First General Purpose Cortex-M33 based MCU in the market Today
- Leading Performance Efficiency with 32uA/MHz in Active Mode
- PowerQuad DSP for math intensive functions
- Advanced security featuring TrustZone, SRAM PUF, real-time encryption/decryption, etc
- Pin and Software Compatibility across the LPC5500 MCU Series
- Robust Enablement with MCUXpresso Software & Tools
- IEC60730 library support for Smart Appliance and Safety applications.

**Start your Development Now! [www.nxp.com/LPC55S69-EVK](http://www.nxp.com/LPC55S69-EVK)**

# LPC5500 MCU SERIES

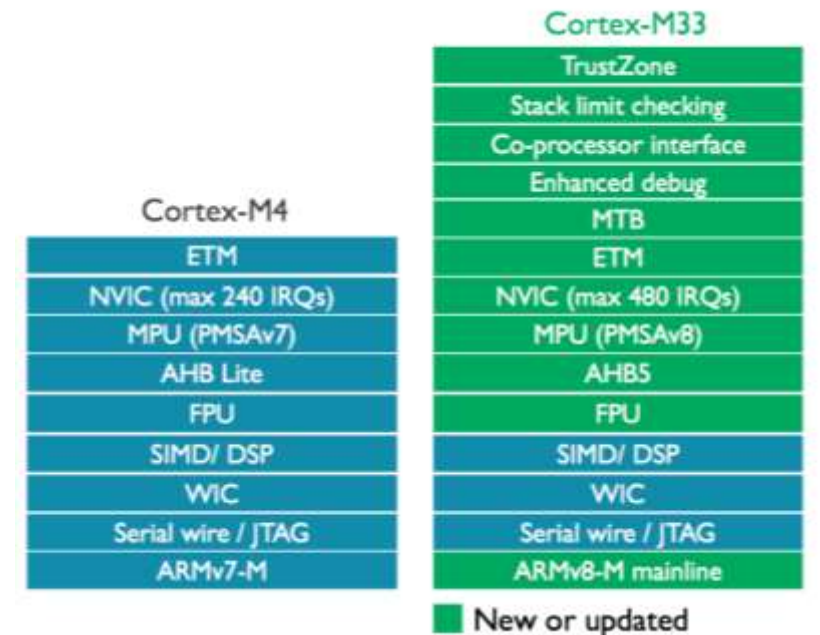
## Key Features and Comparisons

Nearly 20% performance improvement over Cortex-M4 based MCUs (over 60% vs Cortex-M0) with redesigned pipeline - up to two instructions per clock cycle

	Cortex-M0+	Cortex-M23	Cortex-M3	Cortex-M4	Cortex-M33
DMIPS/MHz	0.95	0.98	1.25	1.25	1.50
CoreMark <sup>®</sup> /MHz	2.46	2.50	3.32	3.40	4.02

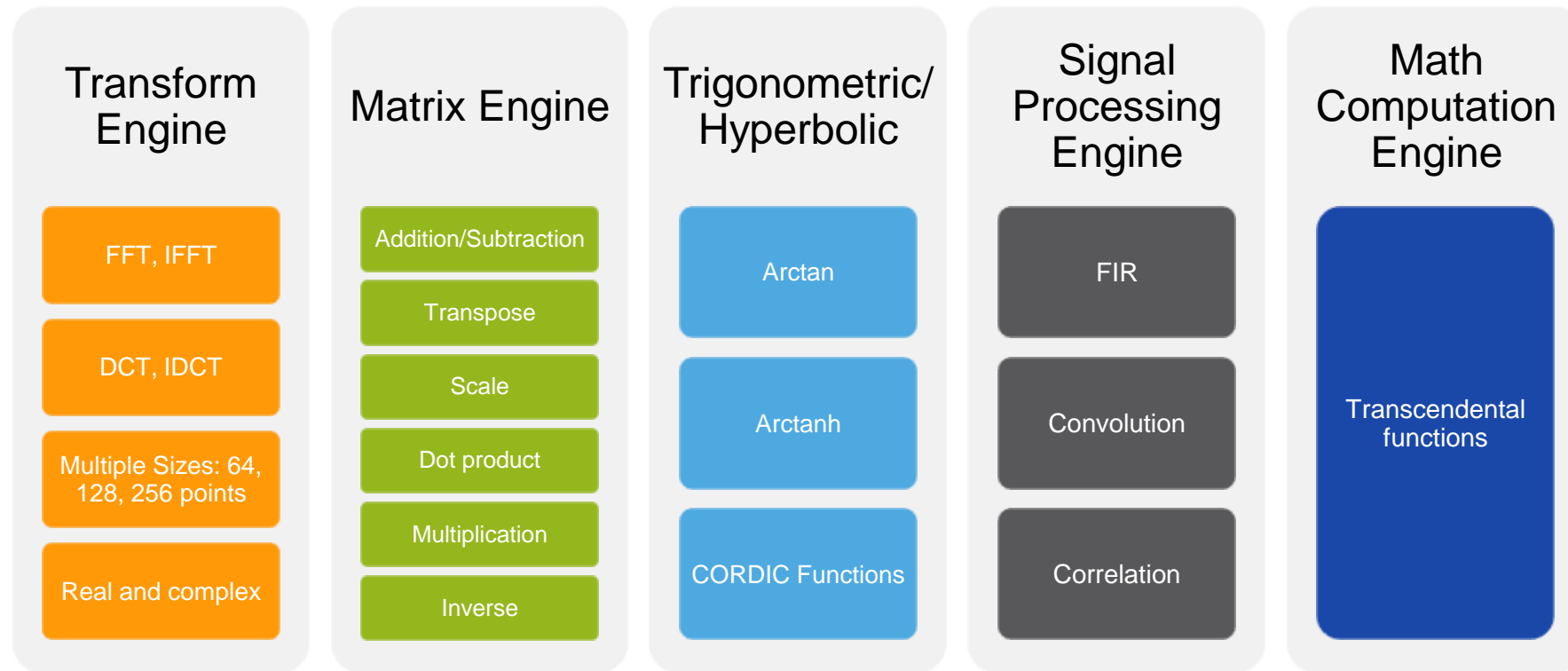
TrustZone for system-wide, secure resource isolation enabling trusted runtime execution and physical protection in embedded MCU applications

Tightly coupled accelerators with coprocessor interface & extensions (Arm's single precision FPU along with NXP accelerators)



# NXP'S POWERQUAD HARDWARE ACCELERATOR

- HW accelerator for frequently used math and signal processing computations
- ARM CMSIS-DSP API provides standardization for DSP code running on Cortex-M cores. Co-processors can leverage this API
- 15x more efficient than Cortex-M33 running CMSIS-DIP lib for FFT/IFFT (~50x faster than generic FFT C-code running on Cortex-M33)



## Key Advantages

- Energy consumption reduction for DSP tasks
- Fast implementation for 'lego' blocks of DSP processing
- Can Operate in parallel with Arm Cortex-M33 Core
- No need for wasting RAM lookup tables



# NXP LPC5500 MCU SERIES

## COMMON PLATFORM ARCHITECTURE FOR COMPLETE SCALABILITY

### Common features across families

- FS/HS USB with PHY, 50MHz SPI, up to 8/10 Serial Interfaces (FlexComm)
- Up to 2Msps 16-bit SAR ADC, Comparator, Temperature Sensor and RTC
- 1.8 to 3.6V, -40 to 105 °C

LPC5500 FAMILY	SAMPLES [ LAUNCH]	MEMORY	TGT MAX FREQ	DUAL CORE	SECURITY FEATURES	DSP ACCEL	FS&HS USB	SDIO	CAN-FD	10/100 ENET	Ext. Memory Ctrl	ANALOG	SERIAL INTERFACE
<b>Efficiency</b> LPC55S6x	<b>Q4-18</b> <b>[Mar-19]</b>	Up to 640KB Flash, 320KB SRAM	150 MHz	Yes	Yes	Yes	Yes	Yes	-	-	-	1 16b ADC 2Msps	8x FlexComm, HS SPI
<b>Adv. Analog</b> LPC553x/3x	<b>2021</b>	Up to 256KB Flash, 128KB SRAM	150 MHz Opt TZ	-	Opt.	Yes	FS Only	Yes	1x	-	Yes	2 2Msps 16b ADC 2x 12b DAC 3x OpAmps	8x FlexComm, HS SPI
<b>Mainstream</b> LPC552x/S2x	<b>Q2-19</b> <b>[Oct-19]</b>	Up to 512KB Flash, 256KB SRAM	150 MHz Opt TZ	-	Opt.	-	Yes	Yes	-	-	-	1 16b ADC 1Msps	8x FlexComm, HS SPI
<b>Entry</b> LPC551x/S1x	<b>Q1-19</b> <b>[Apr-20]</b>	Up to 256KB Flash, 96KB SRAM	150 MHz Opt TZ	-	Opt.	-	Yes*	-	1x*	-	-	1 16b ADC 2Msps	8x FlexComm, HS SPI
<b>Baseline</b> LPC550x	<b>Q3-20</b> <b>[Q4-20]</b>	Up to 256KB Flash, 96KB SRAM	96 MHz Opt TZ	-	Opt	-	-	-	1x	-	-	1 16b ADC 2Msps	8x FlexComm, HS SPI

\*HS USB/CAN-FD not available on all part numbers within the family, check data sheet for specific configurations

# NXP LPC5500 MCU SERIES – SCALABILITY

## Common features across families

- FS/HS USB with PHY, 50MHz SPI, up to 8/10 Serial Interfaces (FlexComm)
- Up to 2Msps 16-bit SAR ADC, Comparator, Temperature Sensor and RTC
- 1.8 to 3.6V, -40 to 105 °C

LPC5500 Family	Memory	WL CSP	QFN 48	QFP 64	QFP 100	QFP 144	BGA 98	BGA 196
<b>Efficiency</b> LPC55S6x	Up to 640KB Flash, 320KB SRAM			X	X	X	X	
<b>Adv. Analog</b> LPC553x/S3x	Up to 256KB Flash, 128KB SRAM	Customer Driven	X	X	X		X	
<b>Mainstream</b> LPC552x/S2x	Up to 512KB Flash, 256KB SRAM		X	X	X		X	
<b>Entry</b> LPC551x/S1x	256KB Flash, 96KB SRAM		X	X	X		X	
<b>Entry</b> LPC550x/S0x	256KB Flash, 96KB SRAM		X	X				

**Subject to Change**  
(X = justification required)

## LQFP



**LQFP144 vs MaxQFP144**



**HLQFP100**  
14x14mm-x,y, 1.4mm- z  
0.5mm pitch



**HTQFP64**  
10x10mm-x,y,  
1.0mm- z  
0.5mm pitch

## BGA



**BGA196**  
TBD



**VFBGA98**  
7x7mm-x,y, 0.86mm- z  
0.5mm pitch

## QFN



**HVQFN64**  
9x9mm-x,y, 1.0mm- z  
0.5mm pitch

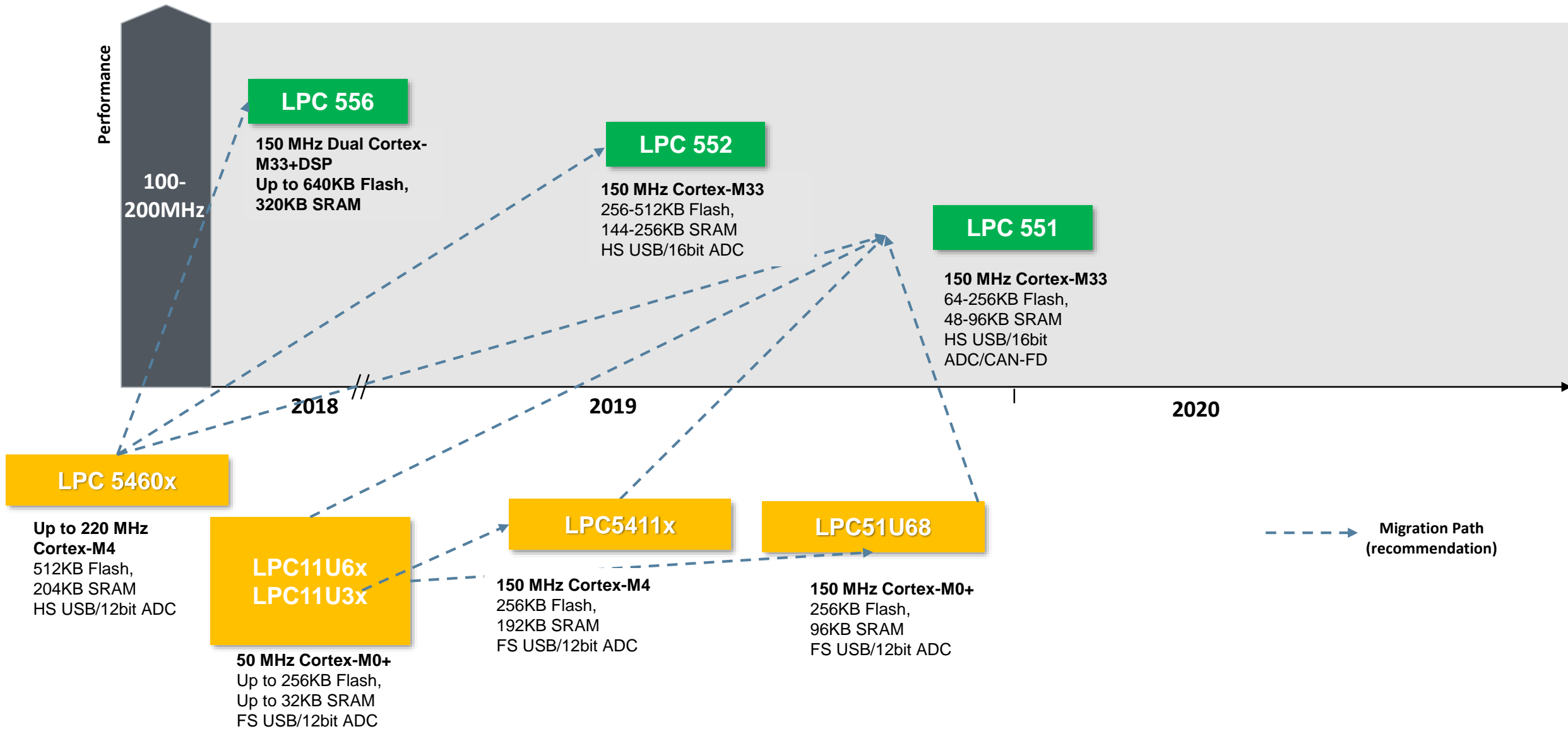


**QFN48**  
7x7mm-x,y, 1.0mm- z  
0.5mm pitch

# LPC5500 MCU SERIES OVERVIEW

	LPC551X/S1X	LPC552X/S2X	LPC55S6X
<b>Cortex-M33 Max Frequency</b>	Up to 150MHz	Up to 150MHz	Up to 150MHz
<b>Cortex-M33 Co-processor Accelerators/ Co-processors</b>	-	-	Yes (Up to 150MHz)
<b>Flash</b>	Crypto Accelerator	Crypto Accelerator	PowerQuad DSP, Crypto Accelerator
<b>SRAM</b>	Up to 256 KB	Up to 512KB	Up to 640KB
<b>Security</b>	TrustZone, HW SRAM PUF, Debug Authentication, real-time encryption/ decryption, TRNG, Secure boot, SHA-2, AES-256, PFR	HW SRAM PUF, Debug Authentication, real-time encryption/ decryption, TRNG, Secure boot, SHA-2, AES-256, PFR	TrustZone, HW SRAM PUF, Debug Authentication, real-time encryption/ decryption, TRNG, Secure boot, SHA-2, AES-256, PFR
<b>CoreMarks</b>	600	600	1150+ (Dual-core)
<b>Serial Interfaces</b>	Up to 9 FlexComm supporting USART, SPI, I2C and I2S. 1x HS LSPI	Up to 9 FlexComm supporting USART, SPI, I2C and I2S. 1x HS LSPI	Up to 9 FlexComm supporting USART, SPI, I2C and I2S. 1x HS LSPI
<b>USB</b>	USB FS w/PHY, USB HS w/PHY	USB FS w/PHY, USB HS w/PHY	USB FS w/PHY, USB HS w/PHY
<b>SDIO</b>	-	SDIO/SD/MMC	SDIO/SD/MMC
<b>CAN</b>	CAN FD/CAN 2.0	-	-
<b>ADC</b>	16b 2 Msps	16b 1 Msps	16b 1 Msps
<b>GPIO</b>	Up to 64	Up to 64	Up to 64
<b>Active Power Consumption</b>	32uA/MHz	35uA/MHz	35uA/MHz
<b>Packages</b>	HTQFP64, HLQFP100, VFBGA98	HTQFP64, HLQFP100, VFBGA98	HTQFP64, HLQFP100, VFBGA98

# LPC5500 MCU Roadmap for Gaming Segment



# QN9090/30: BLE 5.0 WIRELESS MCU

## • CPU

- 48 MHz ARM Cortex-M4 core
- Up to 640kB/320kB Flash, 152kB/88kB RAM and 128kB ROM

## • 2.4 GHz radio transceiver

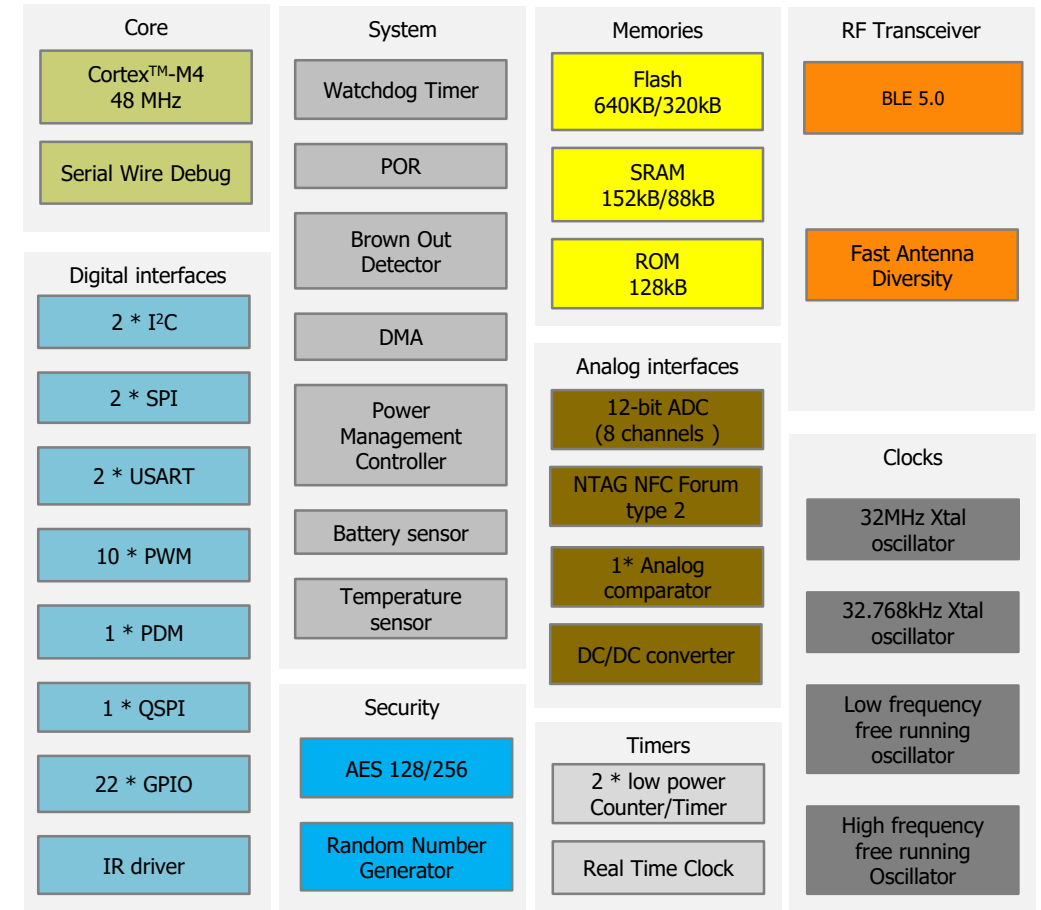
- BLE 5 (as in QN9080)
- Dual PAN support
- NFC Tag (QN9090T and QN9030T)
- Antenna diversity
- +10 dBm power amplifier
- Rx sensitivity -97dBm BLE
- Peak typical current:
  - 20.5mA Tx @ +10dBm, 9.5mA @ +3dBm, 7.7mA @ +0dBm
  - 4.3mA Rx
- 0.8uA Sleep Mode current with no RAM retention

## • Security

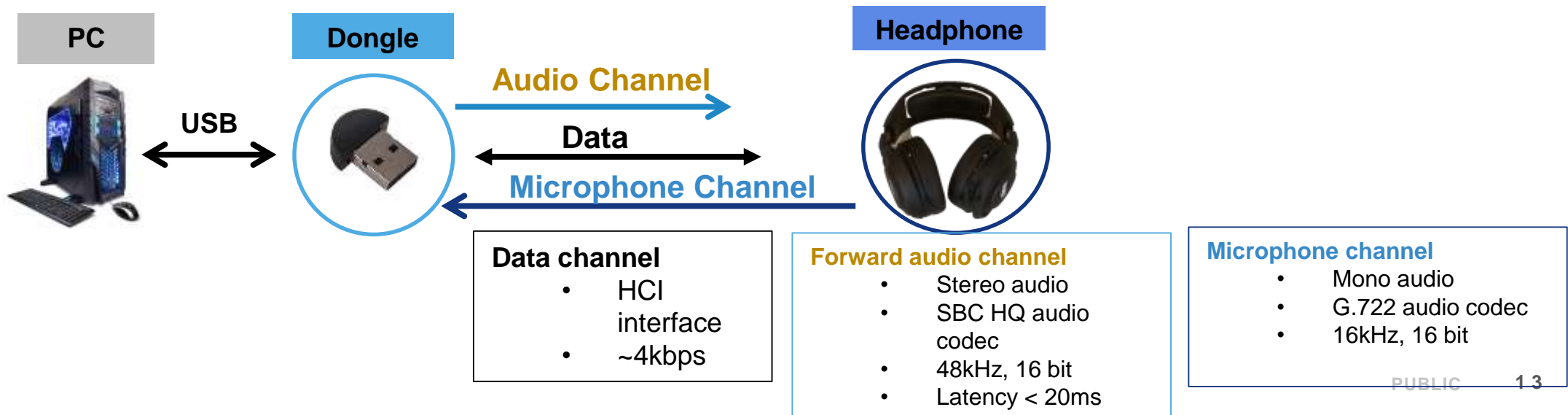
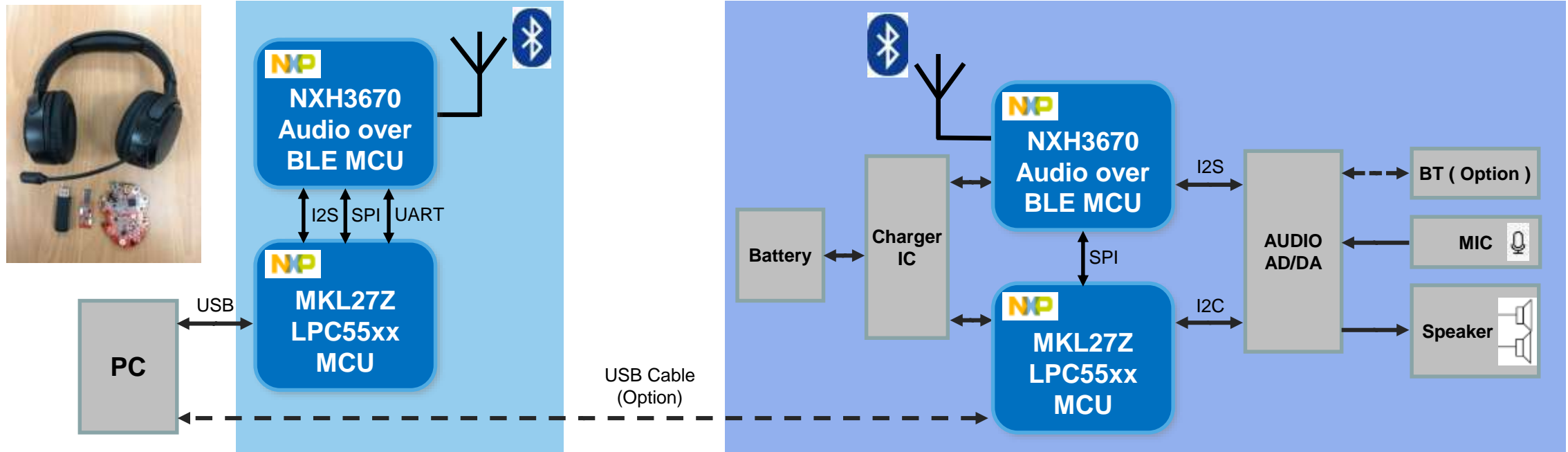
- Crypto engine: AES 128-256, RNG

## • System

- Tj: -40°C to +125°C
- HVQFN40 6x6 mm
- QN9090 and QN90303 are HW and SW compatible



# NXP WIRELESS & WIRELESS GAMING HEADSET DEMO CASE



# 世平集團於電競週邊整合方案及市場未來藍圖



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A Member of WPG Holdings

World Peace Industrial Group

# 8K Polling Rate eSports Keyboard, Mouse, Headset Design Skills Announce

WPIg ATU Adam Wang



Scan Me For More Information!

DaDaTong NXP Channel





# Agenda

- **WPG Holdings / WPIg Introduction**
- **Gaming Application Market Analysis**
- **WPIg Gaming Solution Roadmap**
- **WPIg ARM Development Platform**
- **WPG Holdings Online Resources**

# WPIg Applications Coverage



## Automotive



ADAS



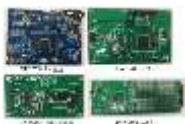
EV charger



ADB



PKE



BMS

## Industrial



Digital Power



OBC



HMI



Motor Driver



Instrument

## IoT



BTC



Zigbee



Wifi



BLE

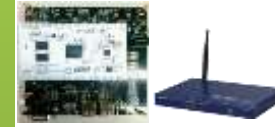


Elock

## Communication



Mobile



Gateway



Ethernet Switch



NFC



Data Card

## Consumer



Gaming



LED lighting



MID



TV Box



Wearable



# Agenda

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# eSports Market Introduction

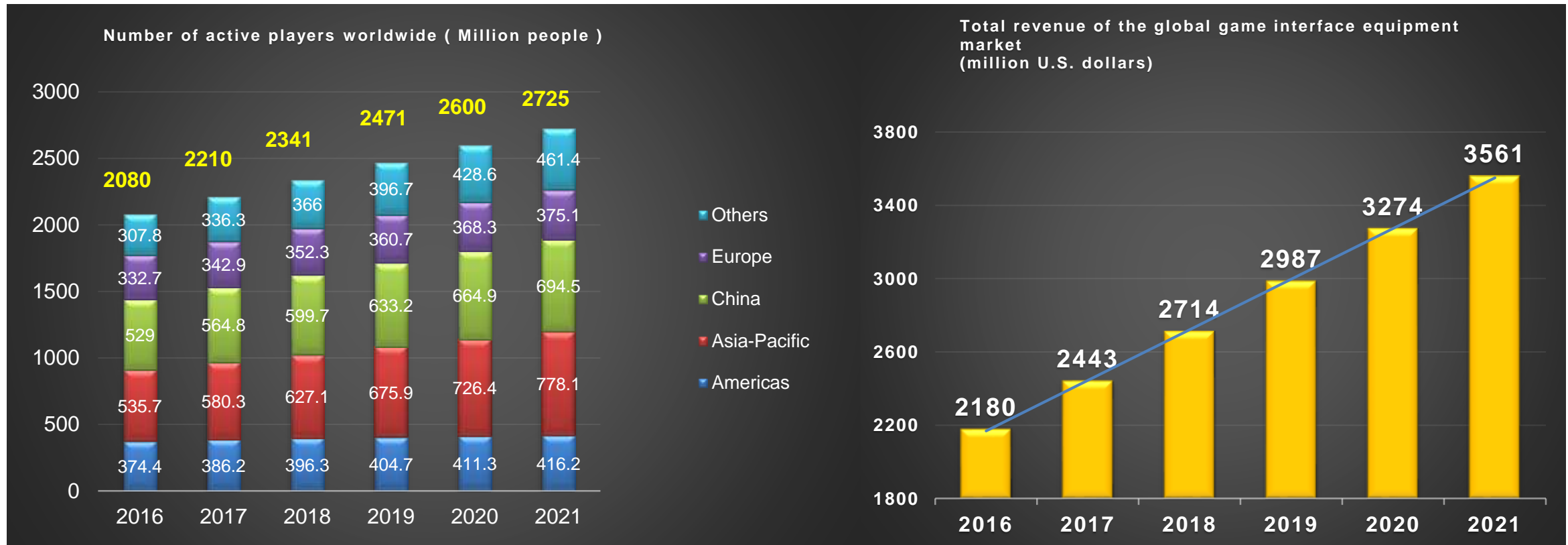
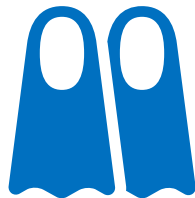


Photo :

<http://newjust.masterlink.com.tw/HotProduct/HTML/Detail.xdjhtm?A=PA339-2.html>

# Sports vs. eSports



# eSports Competition



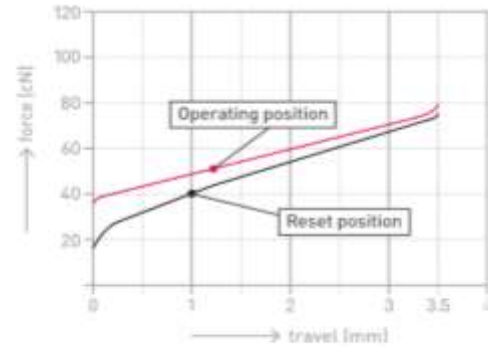
- **Concentration**
- **Reaction**
- **Dynamic vision**
- **Hand speed**
- **Communication**
  
- **Response time**
- **Fluency**
- **Sensitivity**
- **Resolution**

# Keyboard Comparison Table

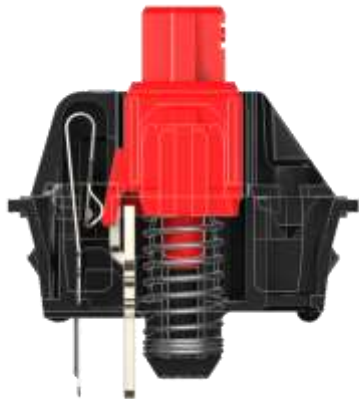


<b>Mechanical Keyboard vs. Membrane Keyboard</b>		
<b>Key</b>	<b>Mechanical</b>	<b>Membrane</b>
<b>Trigger</b>	<b>Mechanical Axis</b>	<b>Conductive Film</b>
<b>Bounce</b>	<b>Low Latency</b>	<b>High Latency</b>
<b>Feel</b>	<b>Great Feedback</b>	<b>Small Feedback</b>
<b>Usage Count</b>	<b>&gt; 50,000,000</b>	<b>10,000,000</b>
<b>Application</b>	<b>Gaming</b>	<b>NB</b>

# Difference Key Design



<https://www.hyperxgaming.com/tw/keyboards/switches>



©2014 Logitech



## 減壓式金屬墊片

緩衝敲擊力道，延長電路板使用效能

<http://www.dike.com.tw/%E9%8D%B5%E9%BC%A0%E9%80%B1%E9%82%8A/dk400/>

## Keycap



## Silicone



# Mouse Sensor



- **CPI ( DPI )**  
Counts Per Inch
- **FPS**  
Frames Per Second
- **IPS**  
Inch Per Second
- **G**  
Acceleration

Gaming Mouse							
Part No.	Operating Voltage (V)	Run Current (mA)	Tracking Speed (ips)	Acceleration (g)	Resolution (cpi)	Frame Rate (fps)	Lift Cutoff (mm)
PMW3389DM-T3QU	1.8-2.1	≈21	400	50	16,000	12,000	<2mm, 2/3mm (Programmable)
PMW3360DM-T2QU	1.8-2.1	23.4	>250	50	12,000	12,000	<2mm, 2/3mm (Programmable)
PAW3335DB-TZDU	1.8-2.1	1.7	400	40	16,000	Self-adjusting	1mm & 2mm
PMW3330DM-TZQU	1.8-2.1	7.6	>150	30	7,200	8,000	<2mm, 2/3mm (Programmable)
PAW3327DB-TWQU	3.0-3.6	14	220	30	6,200	Self-adjusting	-
PMW3325DB-TWVI	1.8-2.1	6.7	100	20	5,000	Self-adjusting	-
PMW3325DB-TWMU	1.8-2.1	5.0	100	20	5,000	Self-adjusting	-

Photo :

[https://www.pixart.com/products-comparison/7/Optical\\_Mouse\\_Sensor](https://www.pixart.com/products-comparison/7/Optical_Mouse_Sensor)

# Headset Features



## Sampling Resolution :

16Bit 、 24Bit 、 32Bit

## Sampling Rate :

48KHz 、 96KHz 、 192KHz

## Channel :

Dual channel, 5.1 channel, 7.1 channel

## Data Volume :

Resolution \* Rate \* Channel

## EQ ( Equalizer ) :

Adjust the gain value of each frequency band signal

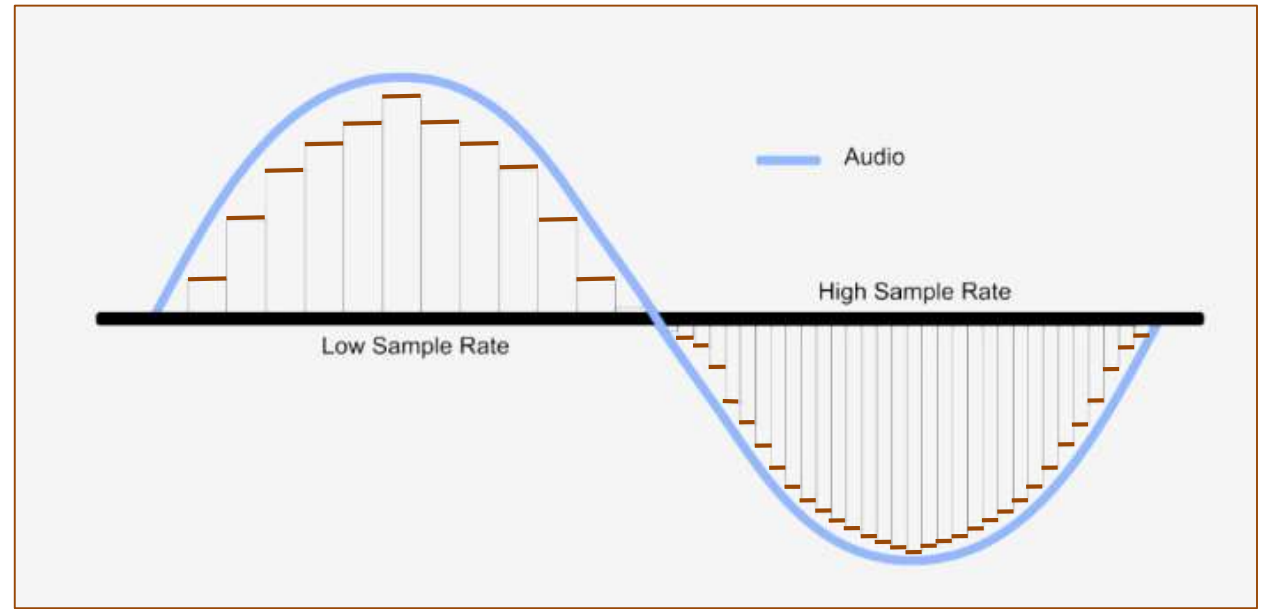


Photo :

<https://www.spill.hk/glossary/android-src-sample-rate-conversion/>

**Hi-Res : > 16Bit 44.1KHz**

**Requirement : 16Bit 96KHz Dual channel**

**Data Volume : 16Bit\*96K\*2 = 3,072Kbps**

# USB Requirement



**Polling Rate**

**Report Rate**



## USB 1.1/2.0 - Low Speed

Polling Rate: 125 Hz

Max Data Rate: 1.5 mbps

TODO - Data transmission analysis

125Hz

## USB 2.0 - Full Speed

Polling Rate: 1000 Hz

Max Data Rate: 12 mbps

1KHz

## USB 2.0 - Hi-Speed

Polling Rate: 8000 Hz

Max Data Rate: 480 mbps

TODO - Data transmission analysis

8KHz

## USB 3.0 - SuperSpeed (USB 3.1 Gen 1)

Polling Rate: 8000 Hz

Max Data Rate: 5 gbps

TODO - Data transmission analysis

## USB 3.1 - SuperSpeed+ (USB 3.1 Gen 2)

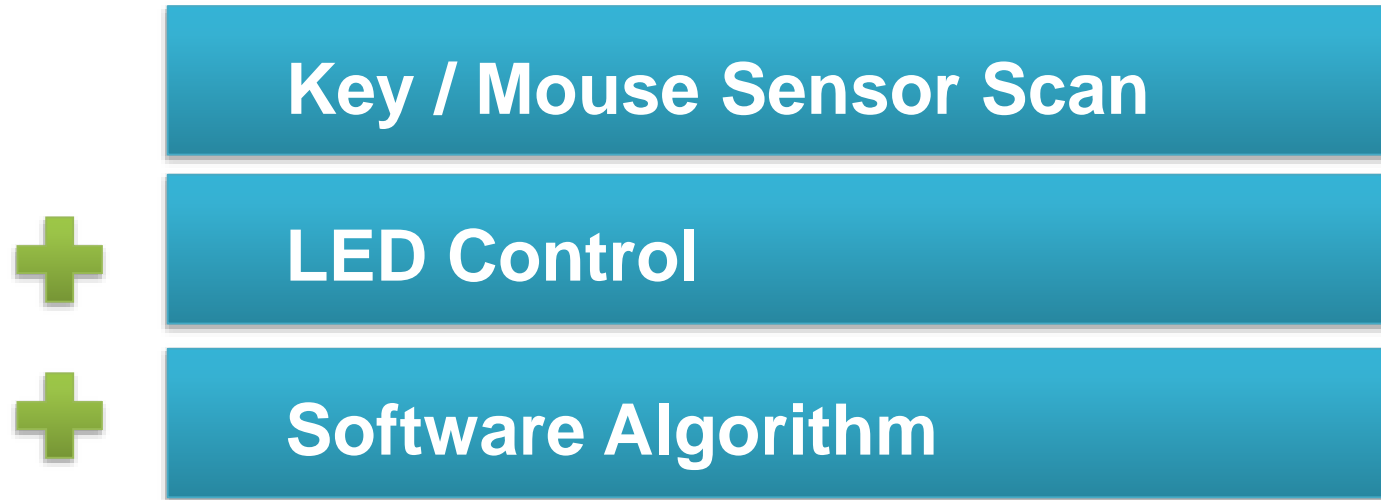
Polling Rate: 8000 Hz

Max Data Rate: 10 gbps

TODO - Data transmission analysis

[https://deskthority.net/wiki/Talk:Polling\\_rate](https://deskthority.net/wiki/Talk:Polling_rate)

# How to Improve Report Rate



=

**Total Time < Report Rate**

Total Time	1mS	500uS	250uS
Report Rate	1K	2K	4K



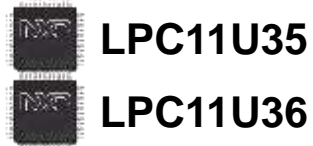
# Agenda

- WPG Holdings / WPIg Introduction
- Gaming Application Market Analysis
- **WPIg Gaming Solution Roadmap**
- WPIg ARM Development Platform
- WPG Holdings Online Resources

# NXP MCU OFFERING FOR GAMING ACCESSORIES



## Entry



- 50Mhz CM0
- Built-in EEPROM
- FS USB



## Mainstream



- 150Mhz CM0+
- Up to 96KB SRAM
- **Xtl-less FS USB**
- 8 Flexcomm (up to 2 I2S)
- **EZH for Key Scan**



- 150Mhz CM33
- Up to 96KB SRAM
- **HS USB + Xtl-less FS USB**
- 8 Flexcomm (up to 8 I2S)
- Up to 16bit 2Msps ADC
- Low power: 35uA/Mhz
- **EZH for Key Scan**



## Performance



LPC552x



LPC551x

- 150Mhz CM33
- Up to 256KB SRAM
- HS USB + Xtl-less FS USB
- 8 Flexcomm (up to 8 I2S)
- Up to 16bit 2Msps ADC
- Low power: 35uA/Mhz
- **EZH for Key Scan**



## Advanced



LPC55S6x



LPC55S2x



LPC55S1x

- Up to 2 x 150Mhz CM33 dual core
- **Advanced security for FW update**
- **Co-Processor DSP**
- Up to 320KB SRAM
- HS USB + Xtl-less FS USB
- 8 Flexcomm (up to 8 I2S)
- Up to 16bit 2Msps ADC
- Low power: 35uA/Mhz
- EZH for Key Scan

## Wireless Connectivity



QN9080/QN9083/QN9030



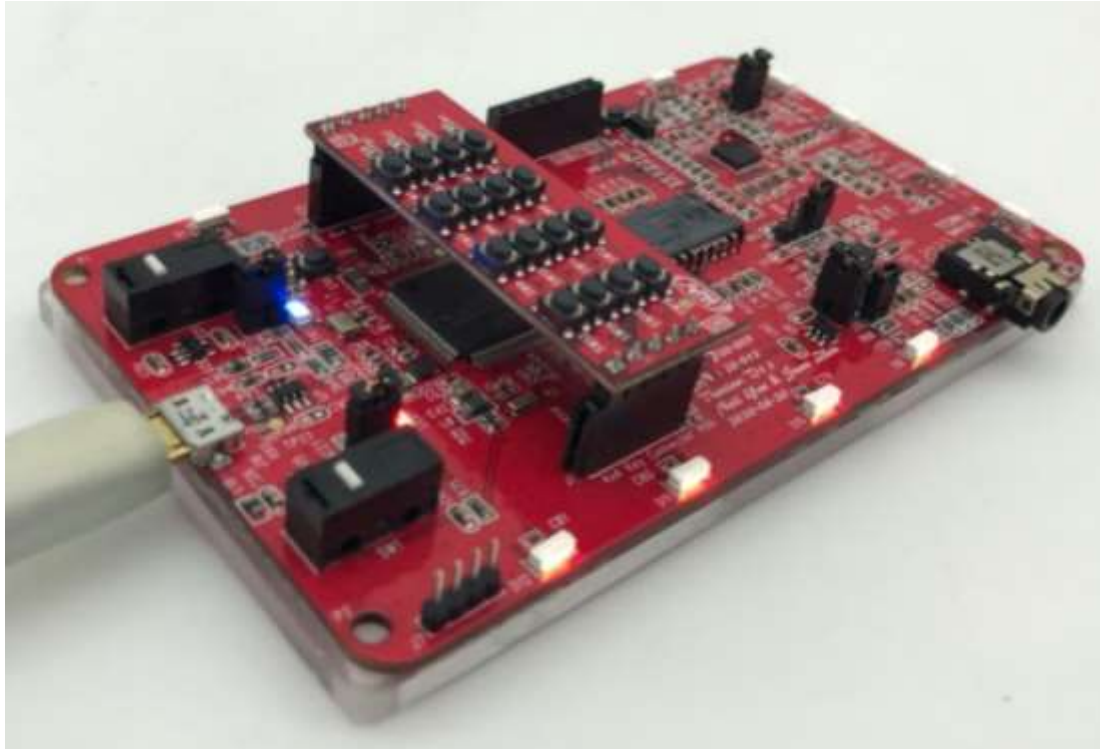
NXH3670/NXH3675



NXP MCUXpresso



# WPIg eSports 3-in-1 combo design for gaming KB/Mouse/Headset



**LPC5516** (256KB flash & 96KB SRAM) = Keyboard + Mouse + Headset with secondary boot loader for FW update & Configurable

- LPC55S16 with High Speed USB enabled
- Running up to 150Mhz with 35 $\mu$ A/MHz power consumption
- Using ARGB (Active RGB LED) via serial port control to simplify layout & saving BOM cost (no LED driver required)
- **Keyboard:**
  - ✓ Enabled unique EZH HW accelerator for up to 128 (8\*16) key scan. Latency is ~20 $\mu$ s vs traditional key scan method 200-300 $\mu$ s.
- **Mouse:**
  - ✓ Paired with popular PixArt 3389 sensor
  - ✓ Support up to 8K polling rate vs. classic 1K
- **Headset:**
  - ✓ LPC55S16 with High Speed USB enabled
  - ✓ Support UAC2.0/2.1
  - ✓ Support up to 32-bit, 384kHz with Hi-Res sound quality

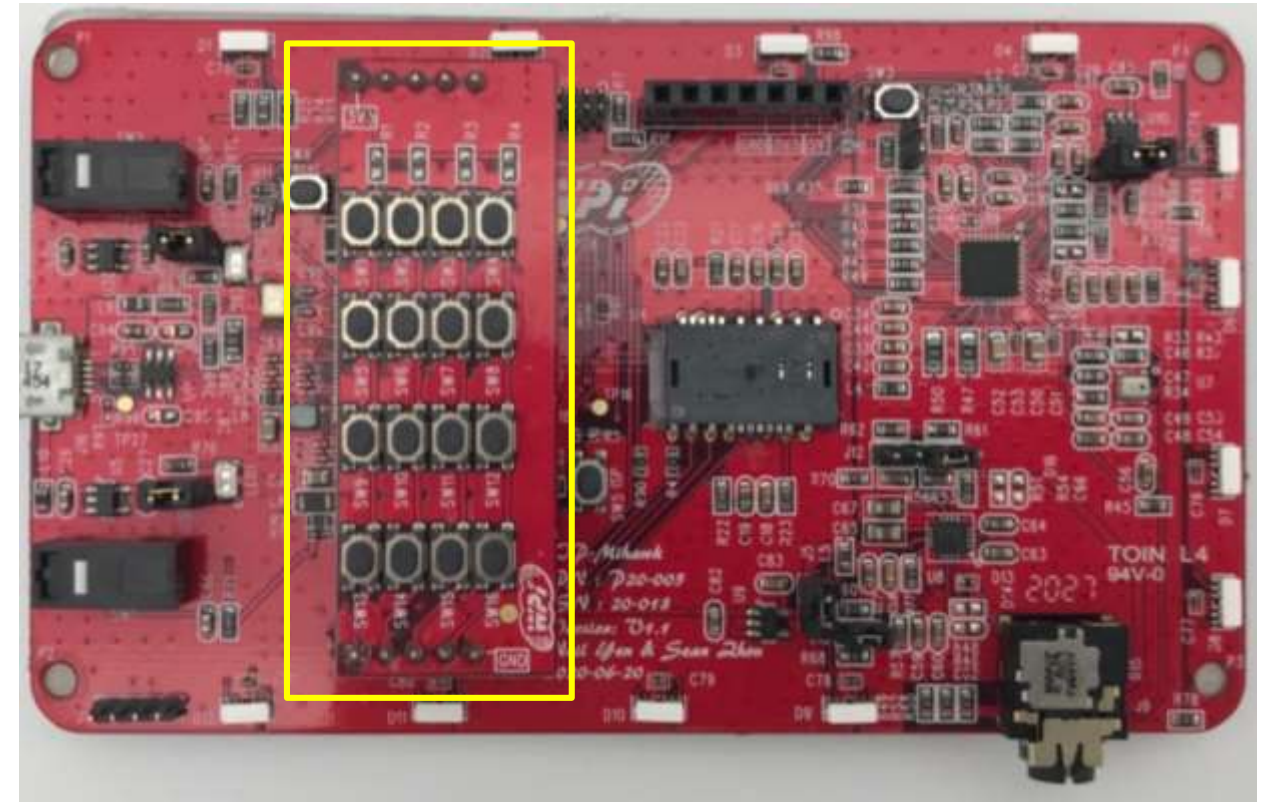
## Expansions:

1. Key Matrix board
2. NXH3670 daughter board (Low latency BLE)
3. QN9030 daughter board (BLE 5.0)
4. 2D Cap Touch board
5. 1D Slider Cap Touch board
6. LPC8N04 NFC board

# WPIg Gaming Accessory Design Features 1/4- HW Key Scan Accelerator



- The 4\*4 Key Scan requires only 2  $\mu$ S to using the hardware accelerator, and only 20  $\mu$ S for the 8\*16 key application
- The Key Scan of the basic MCU takes about 200  $\mu$ S
- Keep M33 core task free for the others





# WPIg Gaming Accessory Design Features 2/4-2K Report Rate



按下 **F11** 即可結束全螢幕模式

## Mouse Rate Checker

Please click and move your mouse to start.

Average: **7668**Hz

- 7536 Hz
- 7592 Hz
- 7640 Hz
- 7620 Hz
- 7452 Hz
- 7660 Hz
- 6372 Hz
- 7260 Hz
- 7728 Hz
- 7728 Hz
- 6268 Hz
- 7388 Hz
- 7720 Hz
- 7660 Hz
- 7772 Hz**
- 7452 Hz
- 7616 Hz
- 7616 Hz
- 7772 Hz

<https://zowie.benq.com/en/support/mouse-rate-checker.html>

Mouse Rate Checker measured USB data up to 2K Report Rate

## Mouse Rate Checker

Please click and move your mouse to start.

Average: **1835**Hz

- 1904 Hz
- 1828 Hz
- 1924 Hz
- 1792 Hz
- 2144 Hz
- 2064 Hz
- 1748 Hz
- 1588 Hz
- 1784 Hz
- 1720 Hz
- 1948 Hz
- 1916 Hz
- 2124 Hz
- 1932 Hz
- 1976 Hz
- 2188 Hz
- 2060 Hz
- 1824 Hz
- 1280 Hz
- 32

# WPIg Gaming Accessory Design Features 3/4- Hi-Res Audio



- LPC55 MCU has 8x I2S
- Support USB Audio up to 32 Bit 384KHz

## Default Format

Select the sample rate and bit depth to be used when running in shared mode.

16 bit, 192000 Hz (Studio Quality)

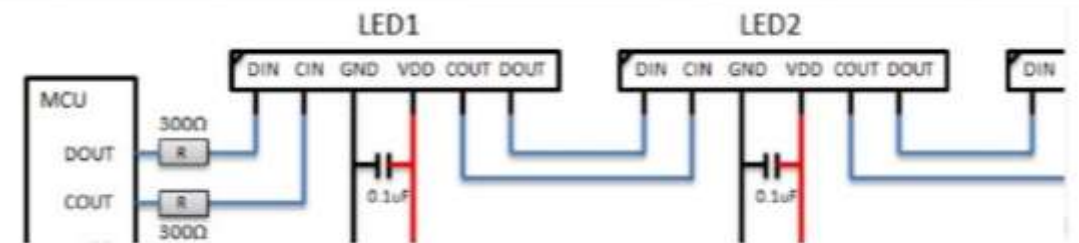
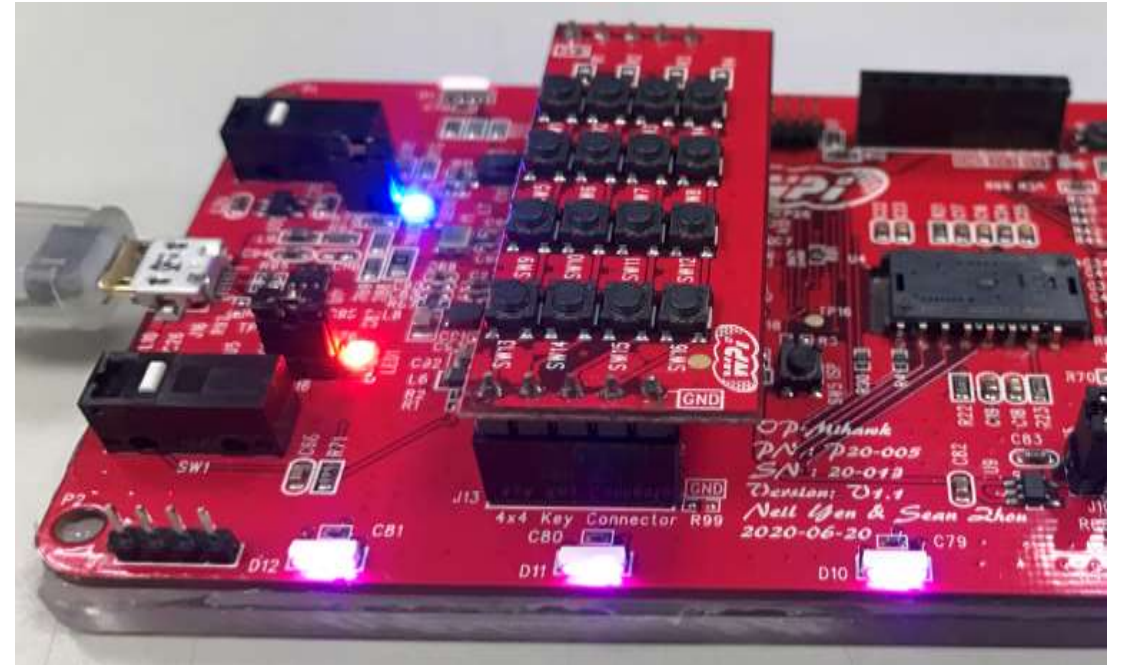
▶ Test

- Data Volume :  $32 \text{ Bit} * 384 \text{ K} * 2 = 24,576 \text{ Kbps}$

# WPIg Gaming Accessory Design Features 4/4- Active RGB LED



- ARGB LED can be controlled by two wires
- Reduce PCB routing effort and EMI issues
- Each LED control only takes 16  $\mu$ S
- LPC55 has 8x Flexcomm
- DMA can improve MCU performance





# WPIg Gaming Accessory Solution



**Gaming 3 in 1**  
LPC551x  
HS USB  
256K Flash  
96K Ram  
8 Flexcomm



**Gaming Ram**  
LPC8 Series  
SWM GPIO  
32~64K Flash  
8~16K Ram



**Gaming VGA**  
LPC51U68  
FS USB  
LPC551x  
HS USB

256K Flash  
96K Ram  
8 Flexcomm



**Gaming Case**  
LPC51U68  
FS USB  
LPC551x  
HS USB

256K Flash  
96K Ram  
8 Flexcomm

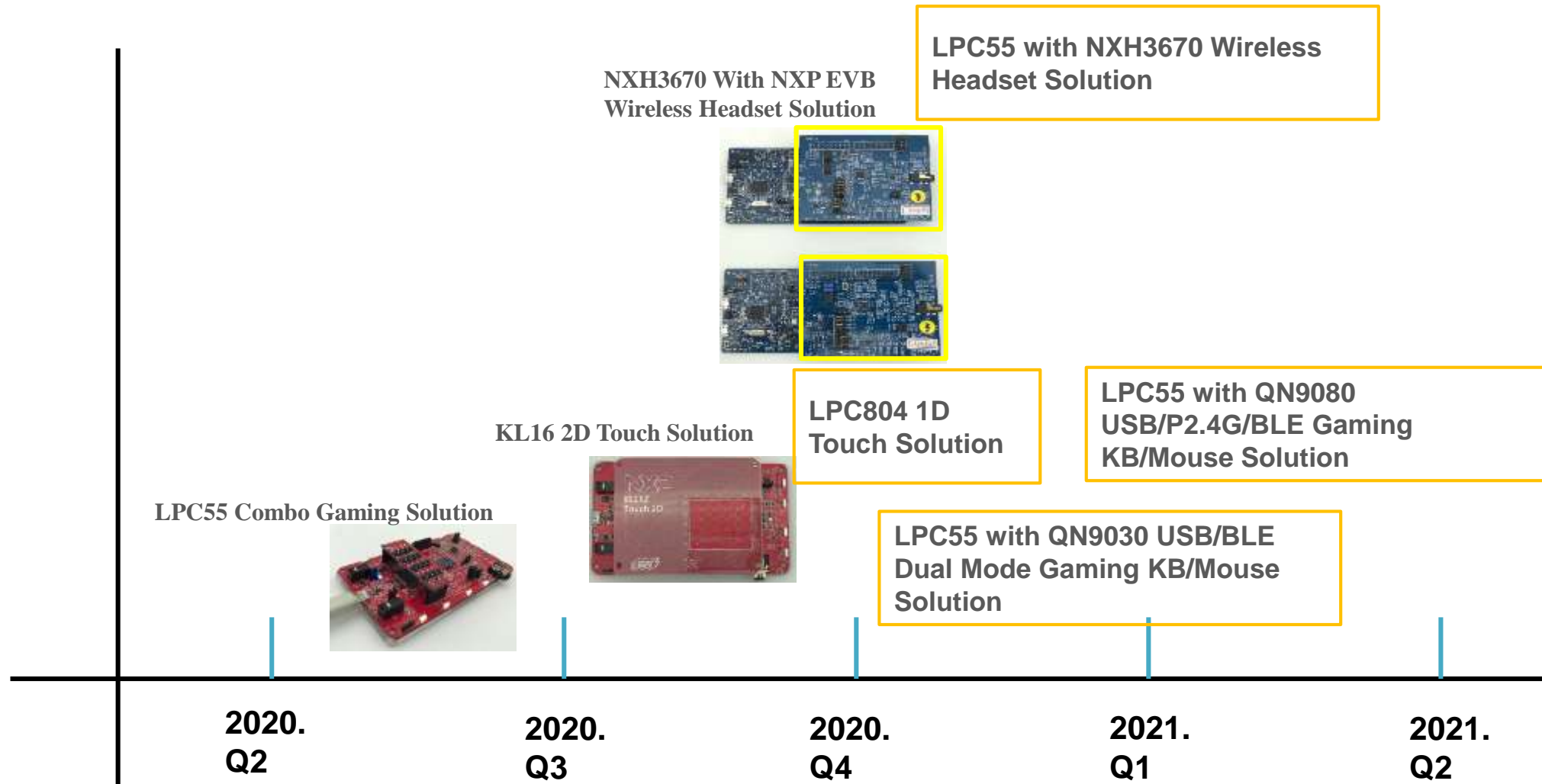


**Gaming Fan**  
LPC8 Series  
SWM GPIO  
32~64K Flash  
8~16K Ram



**Gaming Table**  
LPC552x  
HS USB  
256K Flash  
144K Ram  
8 Flexcomm

# WPIg Gaming Accessory Roadmap



# WPIg 2D Touch Solution for Gaming Accessory



The solution using NXP KL16 to make a 2D Touch function, which can support control modes such as sliding, rotating, pressing once, pressing twice, etc.



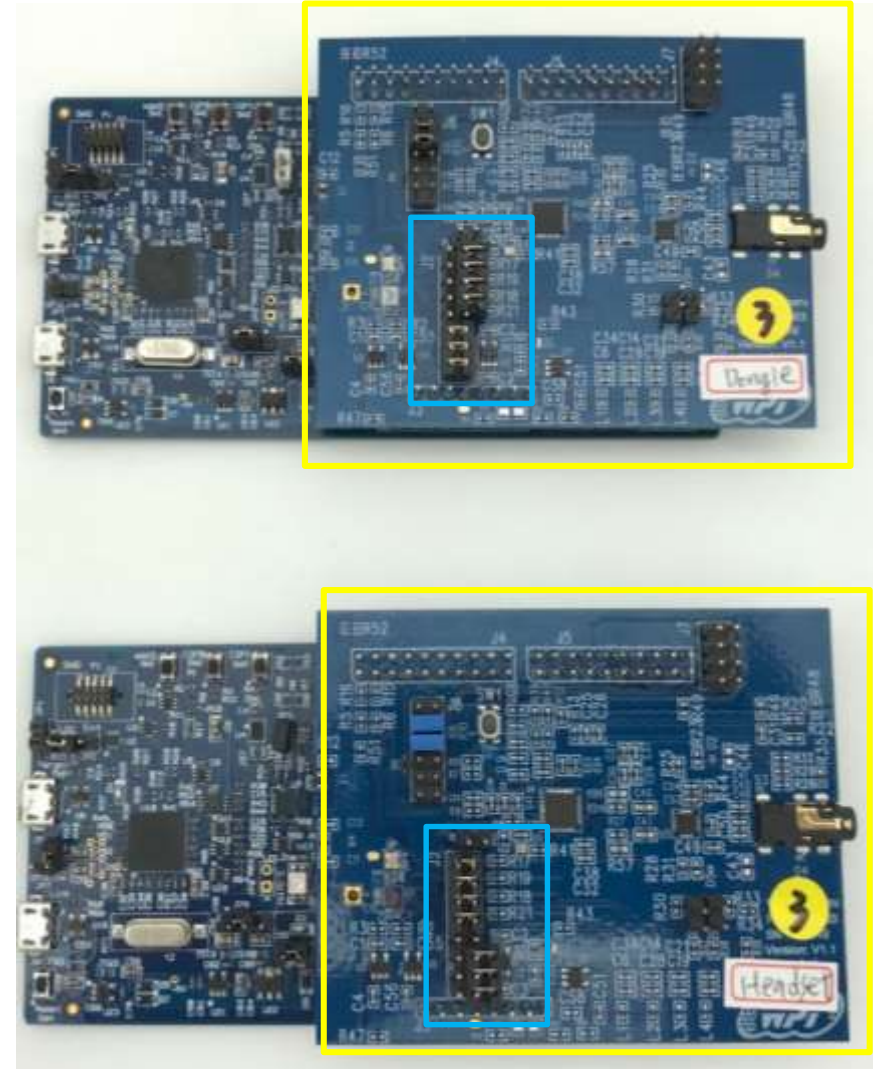
# WPIg Wireless Headset Solution



The solution using NXH3670 to make a wireless headset function, which can be used with NXP LPC51U68 EVM or LPC5528 EVM as a development design

Hi-Res Audio NXH3670 wireless can achieve 24Bit 48K  
Hi-Res Audio, wired mode can support 16Bit 192K  
(LPC51U68 ), 32Bit 384K (LPC55xx)

The **Blue Area** can be select as Dongle or Headset by jumper







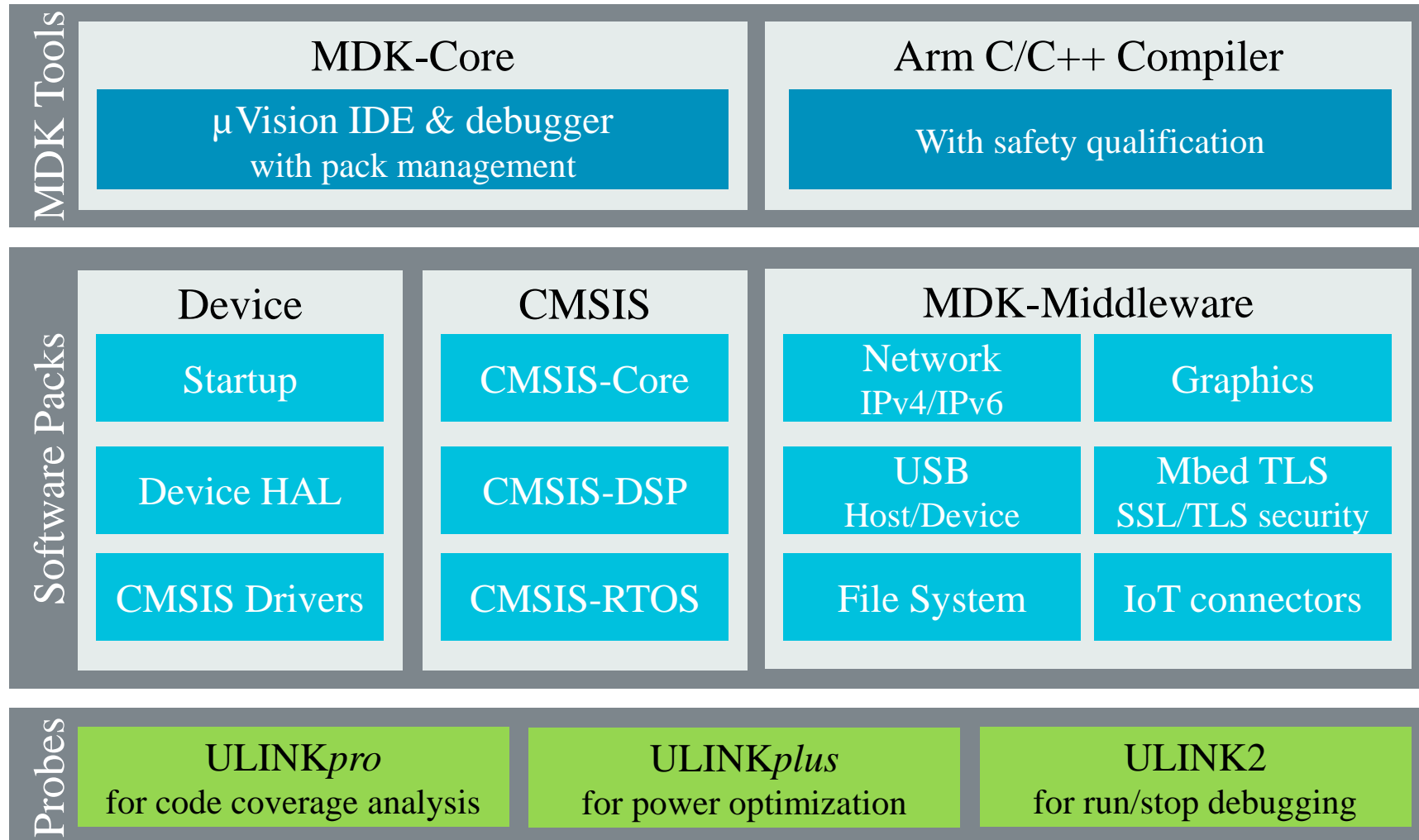
# Agenda

- WPG Holdings / WPIg Introduction
- Gaming Application Market Analysis
- WPIg Gaming Solution Roadmap
- **WPIg ARM Development Platform**
- **WPG Holdings Online Resources**

# Arm Keil MDK 開發環境平台



arm KEIL



# Arm Keil MDK 合作廠商



arm KEIL

MDK editions	Professional	Plus	Essential
µVision Editor and Debugger	✓	✓	✓
Arm C/C++ Compiler	✓ Incl. Compiler Safety Package	✓	✓
Device support	Arm Cortex-M0/M0+/M3/M4/M7/M23/M33, legacy cores	Arm Cortex-M0/M0+/M3/M4/M7/M23/M33, legacy cores	Arm Cortex-M0/M0+/M3/M4/M7/M23/33
Keil RTX5 (with source code)	✓	✓	✓
MDK-Middleware IPv4, USB device, File System, Graphics IPv6, USB host, IoT	✓ ✓	✓	
Order Code - node-locked Package, perpetual Download, perpetual Package, 1 year limited Download, 1 year limited	MDK-PRO MDK-PRO-LC MDK-PRO-T MDK-PRO-T-LC	MDK-PLUS MDK-PLUS-LC MDK-PLUS-T MDK-PLUS-T-LC	MDK-Arm-ES MDK-Arm-ES-LC MDK-Arm-ES-T MDK-Arm-ES-T-LC
Order Code – Flex-LM floating Package, perpetual Download, perpetual Package, 1 year limited Download, 1 year limited	MDKPR-KT-40000 MDKPR-KD-40000 MDKPR-KT-40001 MDKPR-KD-40001	MDKPL-KT-40000 MDKPL-KD-40000 MDKPL-KT-40001 MDKPL-KD-40001	MDKES-KT-40000 MDKES-KD-40000 MDKES-KT-40001 MDKES-KD-40001

台灣地區代理商：祥寶科技

聯絡人：劉興鈺 先生

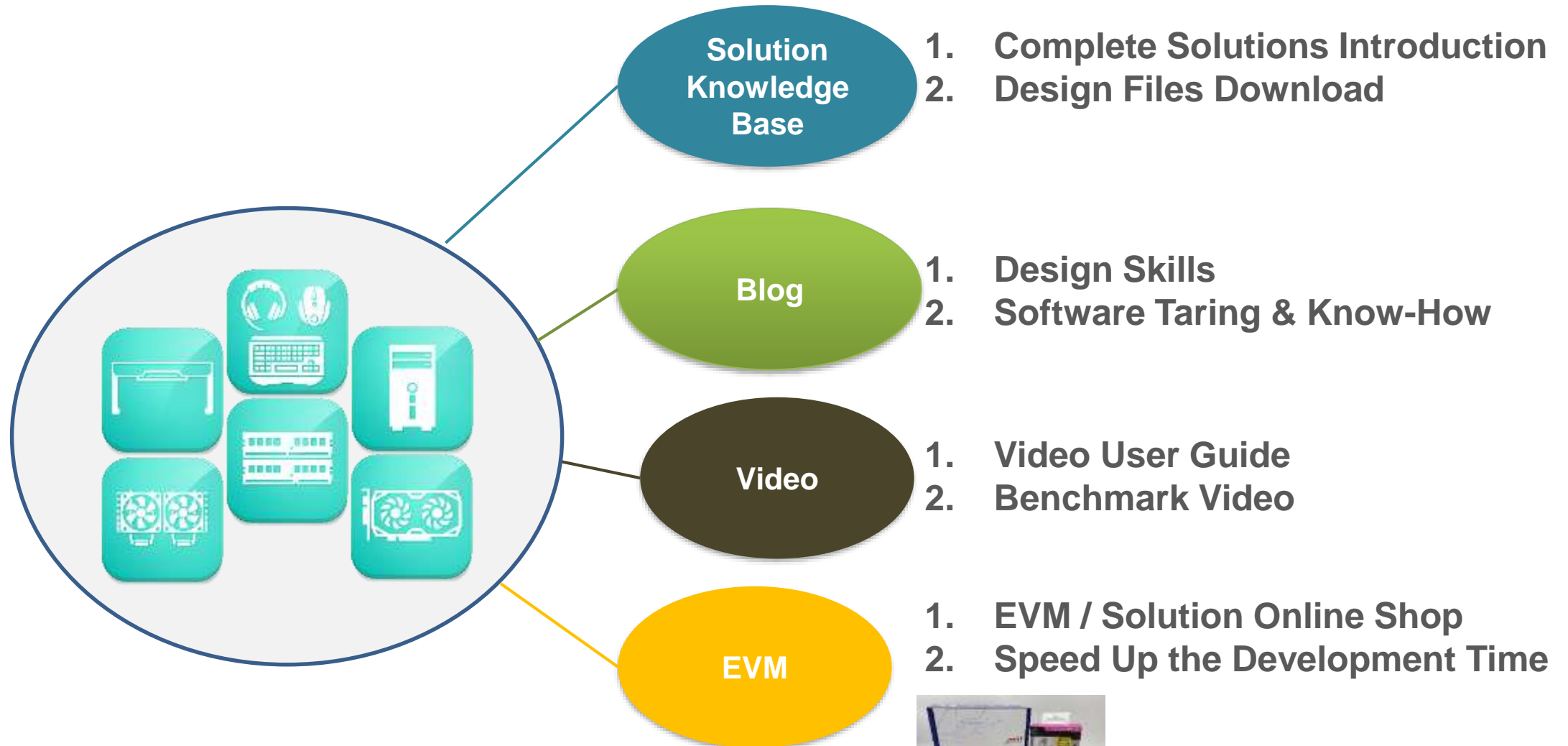
電話：(02)2838-6826

手機：0933-169908

網址：www.micetek.com

E-mail: davis.liu@micetek.com

# WPG Online ( WPG Dadatong 、 WPG Dadago )



# LPC55 Combo Gaming Solution EVM



# Online Resources



## Official Website



WPI Group

## Social Media



WPG Weibo



WPG WeChat

## Technical Platform



WPG Dadatong

## Buy Online



WPG Dadago



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World Peace Industrial Group

*Thank you*

The Benchmark of Distribution



SECURE CONNECTIONS  
FOR A SMARTER WORLD