

Company Profile

Sep 2024



Agenda

- **Puya Company Profile**
- **EEPROM & NOR Flash Product Introduction**
- **MCU Product Introduction**
- **SPD Product Introduction**
- **VCM Product Introduction**

Company in Brief

Puya Semiconductor

- Founded in Shanghai in 2016. Puya is the industry's leading supplier of NVM and microcontroller chips.
- Specialized in IoT, consumer, wearable, mobile phone, industrial, automotive and other fields.
- Listed on Shanghai Stock Market in 2021 (688766.sh).



\$160 Million
2023



21.7 billion pcs
Total shipments



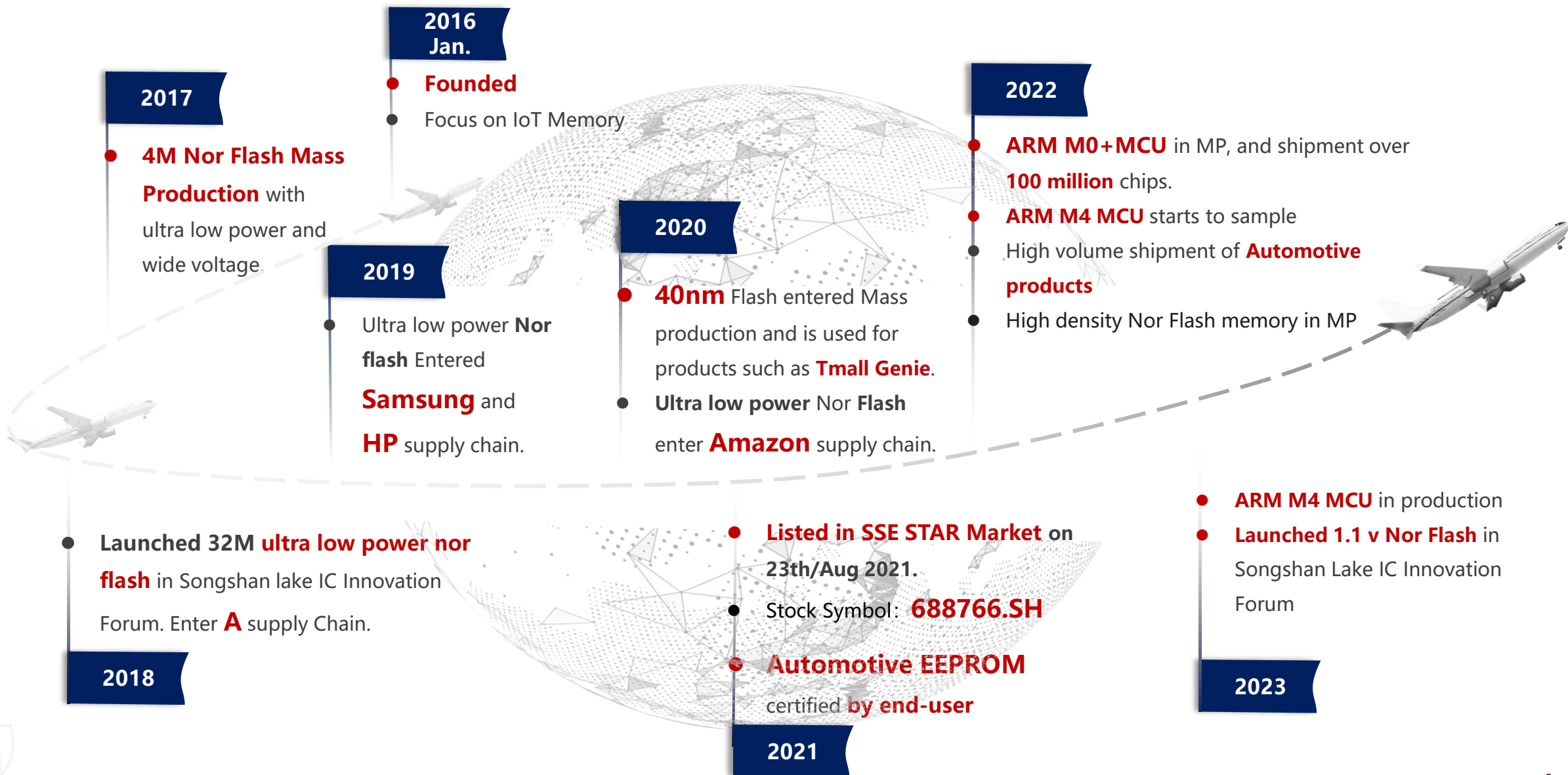
380+
R&D 200+



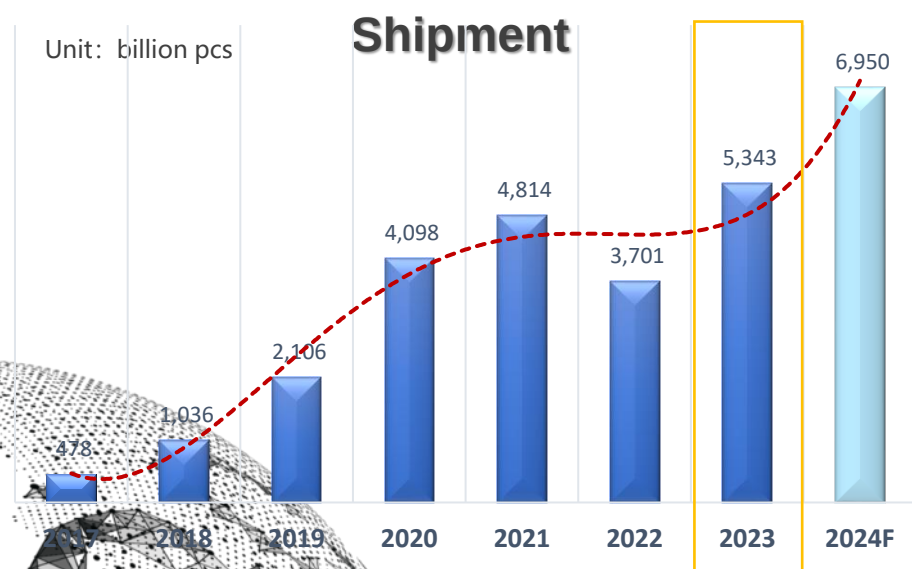
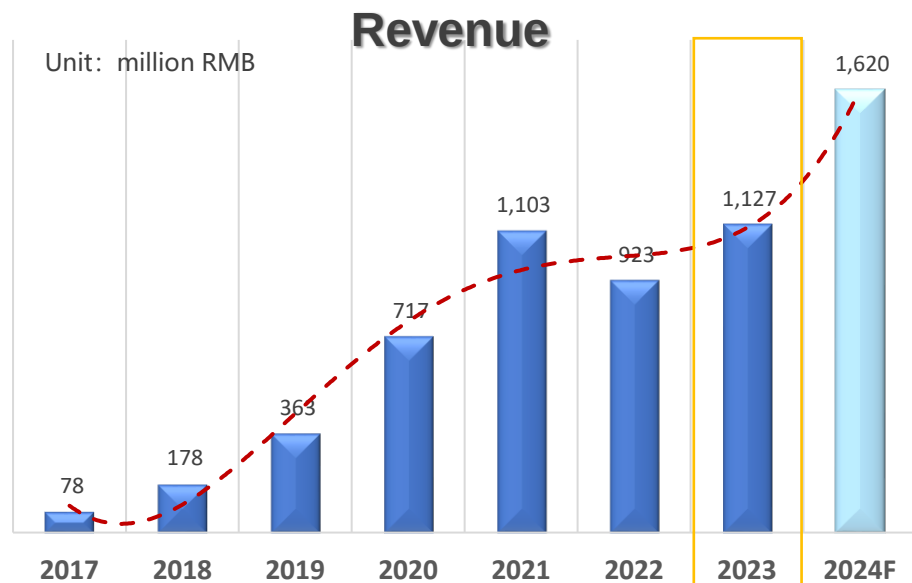
800+
Device



Milestones

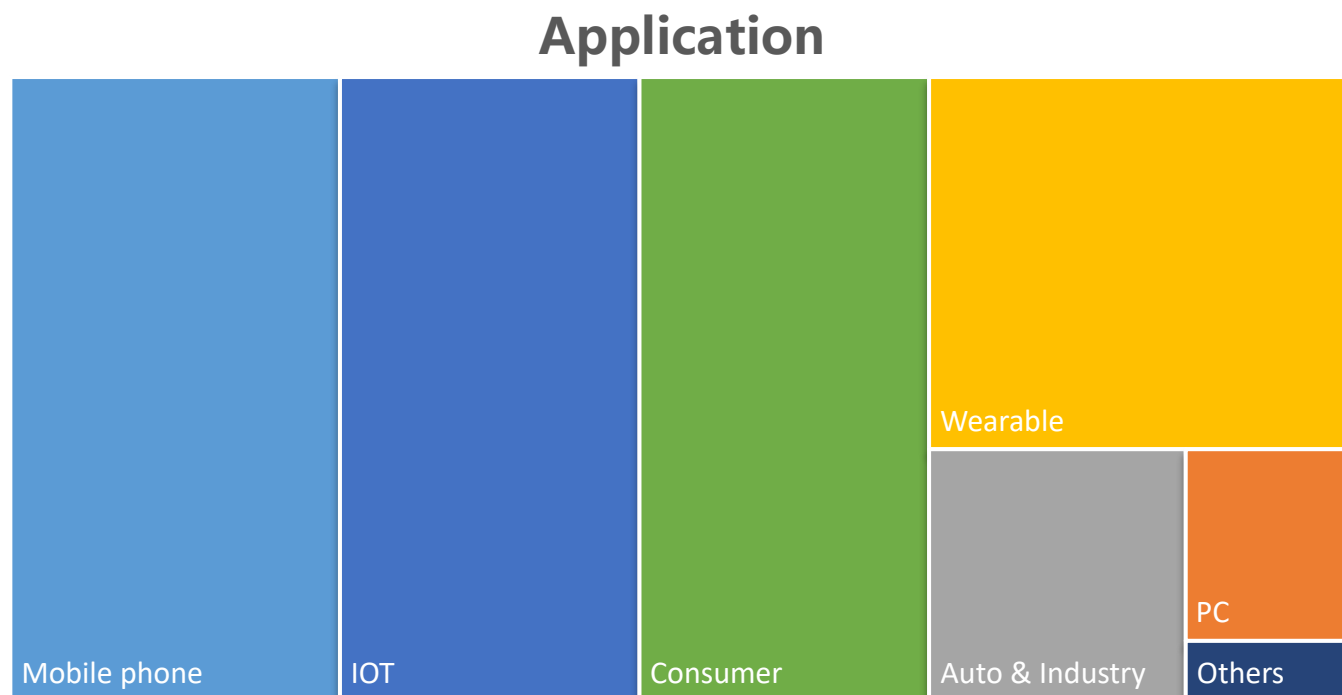


Revenue & Shipment



2023
Revenue: 160 million USD

2023
Shipment: 5.3 billion pcs



Global Ranking

- Both Nor flash and EEPROM ranked **sixth globally** in 2023.
- Achieved a significant growth rate in Nor Flash.

Global Ranking

2022 2023

NOR Flash

Rev. Growth

1	1	Winbond	644	(22.7%)
3	2	GigaDevice	442	(26.0%)
2	3	Macronix	389	(43.0%)
4	4	Infineon	290	(7.90%)
5	5	Micron	140	(3.40%)
6	6	Puya Semiconductor	110	19.6%
7	7	Adesto	55	(8.30%)
8	8	ISSI	50	(9.10%)
9	9	EON	40	(4.80%)

Global Ranking

2022 2023

EEPROM

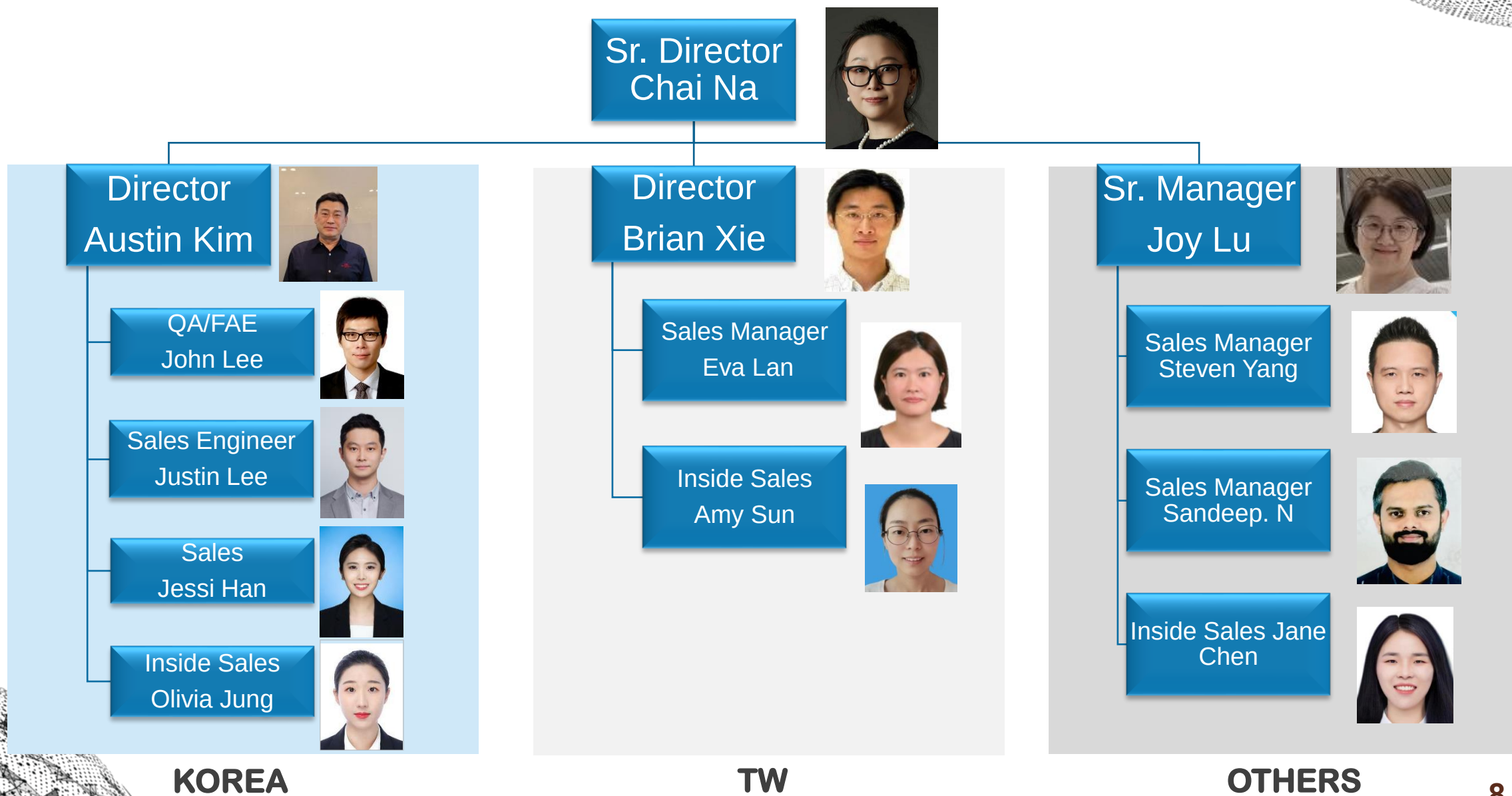
Rev. Growth

1	1	STM	322	(1.50%)
2	2	Microchip	140	2.90%
3	3	Giantec	91	(31.7%)
4	4	Onsemi	71	2.90%
5	5	ABLIC	55	4.00%
6	6	Puya Semiconductor	37	(15.7%)
7	7	Rohm	28	(3.40%)
8	8	FMSH	27	(3.60%)
9	9	FMD	25	(3.80%)

Puya Organization



PUYA Oversea Sales



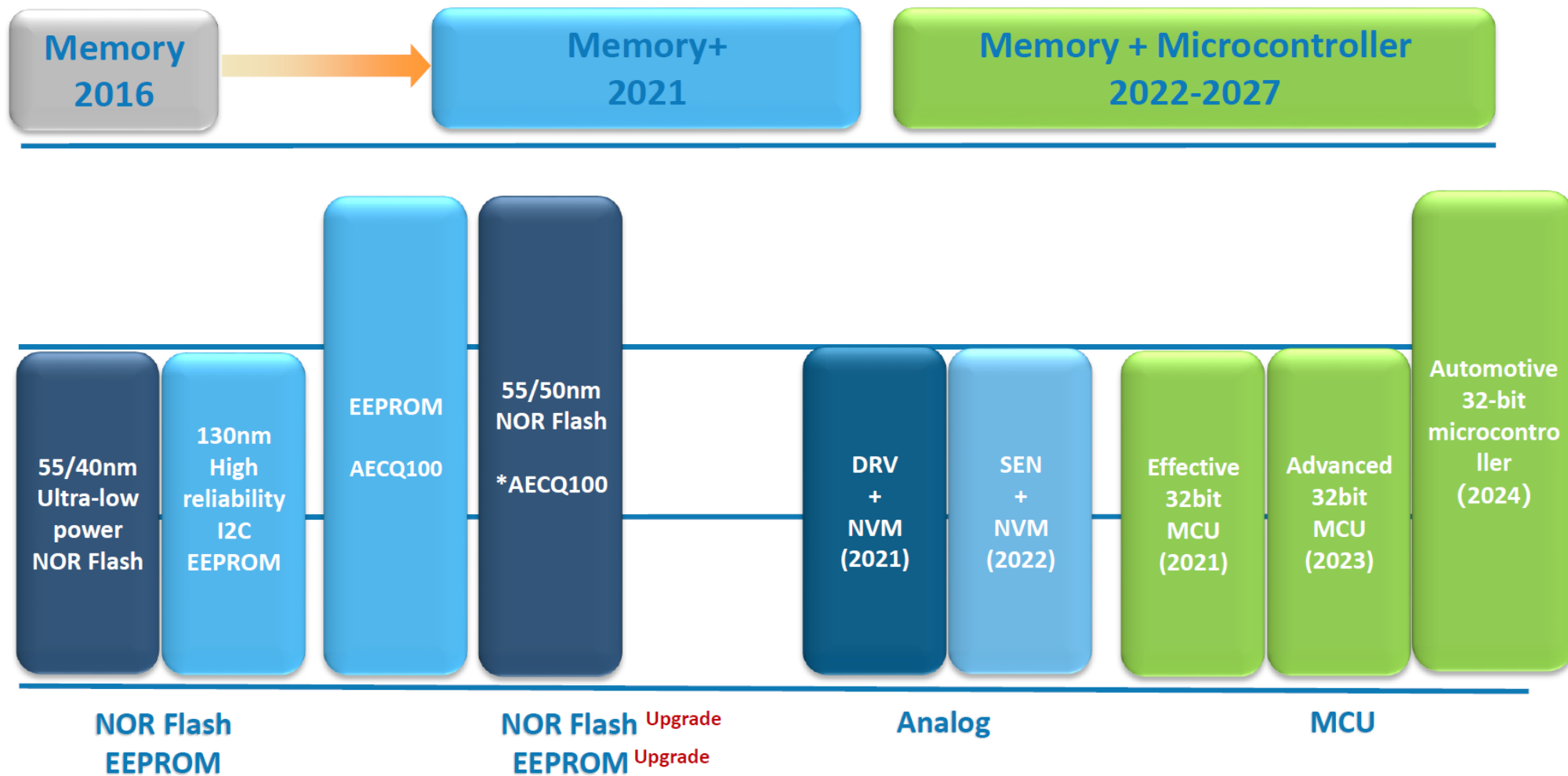


普冉半导体
PUYA SEMICONDUCTOR

Supply Chain



PUYA Plan





Product Group



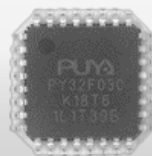
EEPROM

- I²C / SPI/**SPD5**
- Vcc: 1.1V~5.5V
- 85/105/125°C
- 2kbit~2Mbit
- Full line WLCSP
- Retention 100 Year
- Cycling 1kk
- Automotive Grade I
- **55nm**/130nm



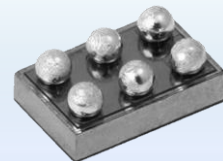
NOR Flash

- SPI/QPI/DTR
- Vcc: 1.1V~3.6V
- 85/105/125°C
- 512kbit~1Gbit
- Endurance 200K
- Automotive Grade I/II
- KGD for SIP
- **40nm**/50nm/55nm
- Small package support



MCU

- ARM Cortex **M0+ /M4**
- Vcc: 1.7V~5.5V
- 32/48/72/144 MHz
- 85/105°C
- 16~384KB Flash
- 2~64KB SRAM
- 12bit ADC/DAC
- OPA/CMP
- USB2.0/CANFD/LCD...
- 8/10/16/20/24/32/48 /64/100pin



VCM Driver

- OLAF**
- Uni-direction/Bi-direction
- Driver +EEPROM
- Close Loop**
- long stroke
- OIS**
- VOIS
- 3.4Mbit I²C

Agenda

- Puya Company Profile
- **EEPROM & NOR Flash Product Introduction**
- MCU Product Introduction
- SPD Product Introduction
- VCM Product Introduction

FLASH Roadmap – Portfolio



PG	Vcc	Interface	Grade	512k	1M	2M	4M	8M	16M	32M	64M	128M	256M	512M	1G		
FLASH	2.3v-3.6v	SPI,DUAL QUAD	Industry	P25Q/DXXXH													
	2.7v-3.6v	SPI,DUAL QUAD	Industry				PY25QXXXH										
	1.65-2.0v	SPI,DUAL QUAD	Industry	P25Q/DXXXL													
	1.65-2.0v	SPI,DUAL QUAD	Industry				PY25QXXXL				MP						
	1.65v-3.6v	SPI,DUAL QUAD	Industry	P25Q/DXXXU													
	1.65v-2.0v	SPI,DUAL QUAD	Auto			P25QXXL-H/A				PY25QXXLX-H/A							
	2.7-3.6v	SPI,DUAL QUAD	Auto				PY25QXXXHX-H/A										
	1.10v-2.0v	SPI,DUAL QUAD	Industry				P25QXXXN		MP								

➤ Product Group

- **GS---P SONOS**
- **GE---PY ETOX**

➤ Supply Voltage

- U, Supply Voltage : 1.65 to 3.6V
- L, Supply Voltage : 1.65 to 2.0V
- H, Supply Voltage : 2.3/2.7 to 3.6V
- **N, Supply Voltage : 1.1 to 2.0V**

Stage:

- MP
- Sample
- UD

NOR Flash

Type

	Supply Voltage	512k	1M	2M	4M	8M	16M	32M	64M	128M	256M	512M	1G
Muti I/O	High Voltage	●	●	●	●	●	●	●	●	●	●	●	●
	Low Voltage	●	●	●	●	●	●	●	●	●	●	●	●
	Wide Voltage		●	●	●	●	●	●	●			●	●
	Ultra Low Voltage				●	●	●	●	●	●	●		
	High Voltage				●	●	●	●	●	●	●		
Automotive Grade II/I	Low Voltage			●	●	●							
	High Voltage						●	●	●	●	●		
SOP	150mil	●	●	●	●	●	●	●	●	●			
	208mil				●	●	●	●	●	●	●		
	300mil											●	●
TSSOP	8-lead		●	●	●	●	●						
USON	1.5x1.5		●	●	●	●	●						
	2x3		●	●	●	●	●	●	●				
	3x4							●	●				
	4x4				●			●	●	●			
WSON	6x5			●	●	●	●	●	●	●	●		
	8x6							●		●	●	●	●
WLCSP			●		●	●	●	●	●	●	●		

Package

1.1V Nor Flash Roadmap

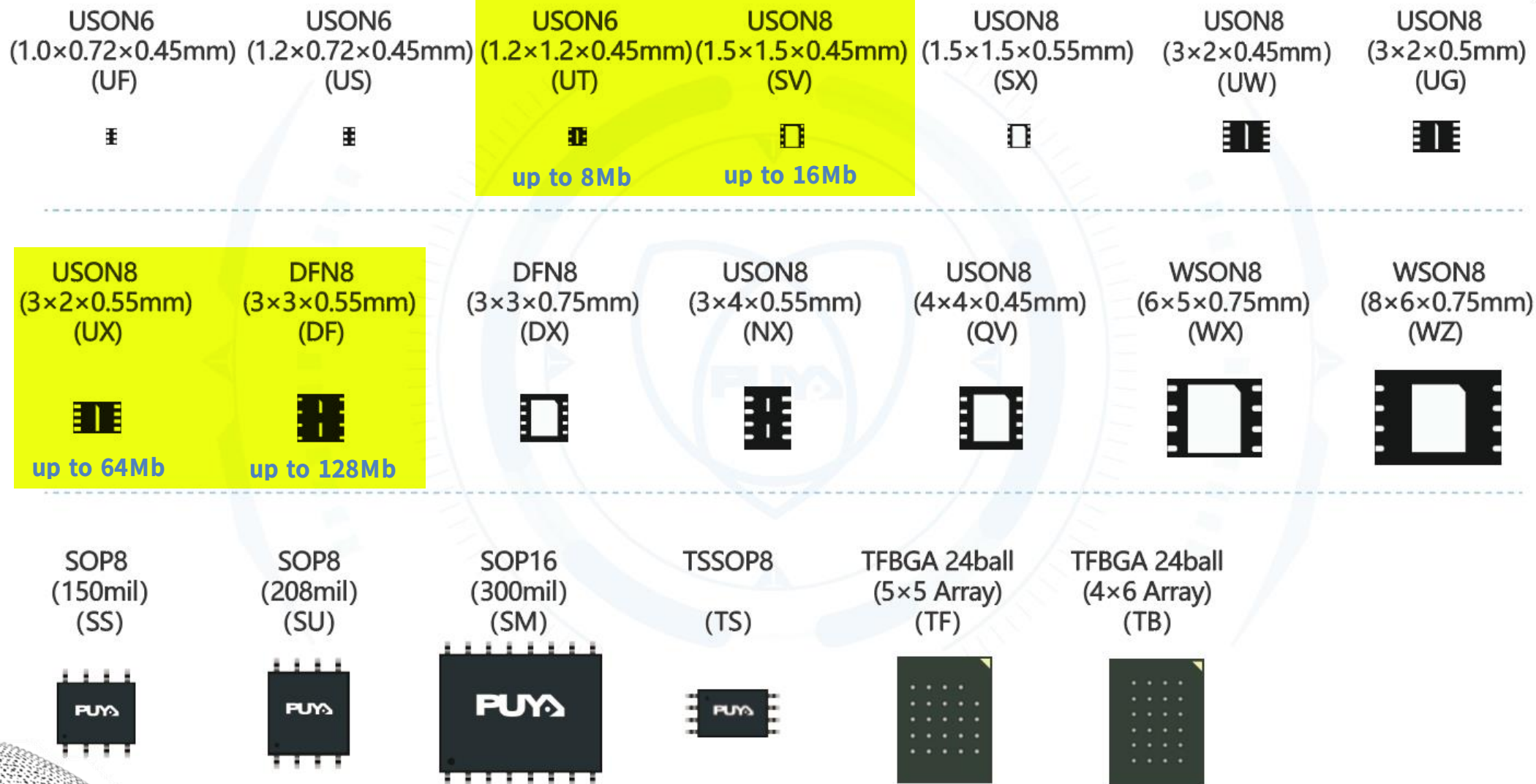
Serial	Supply Voltage	Density	Q1'24	Q2'24	Q3'24	Q4'24	Q1'25	Q2'25	Q3'25	Q4'25	
P GS Serial	1.1v-2.0v	4M			P25Q40SN						
		8M			P25Q80SN						
		16M			P25Q16SN						
		32M	P25Q32SN								
		64M	P25Q64SN								
		128M	P25Q128SN								
		256M			P25Q256SN						

 40nm

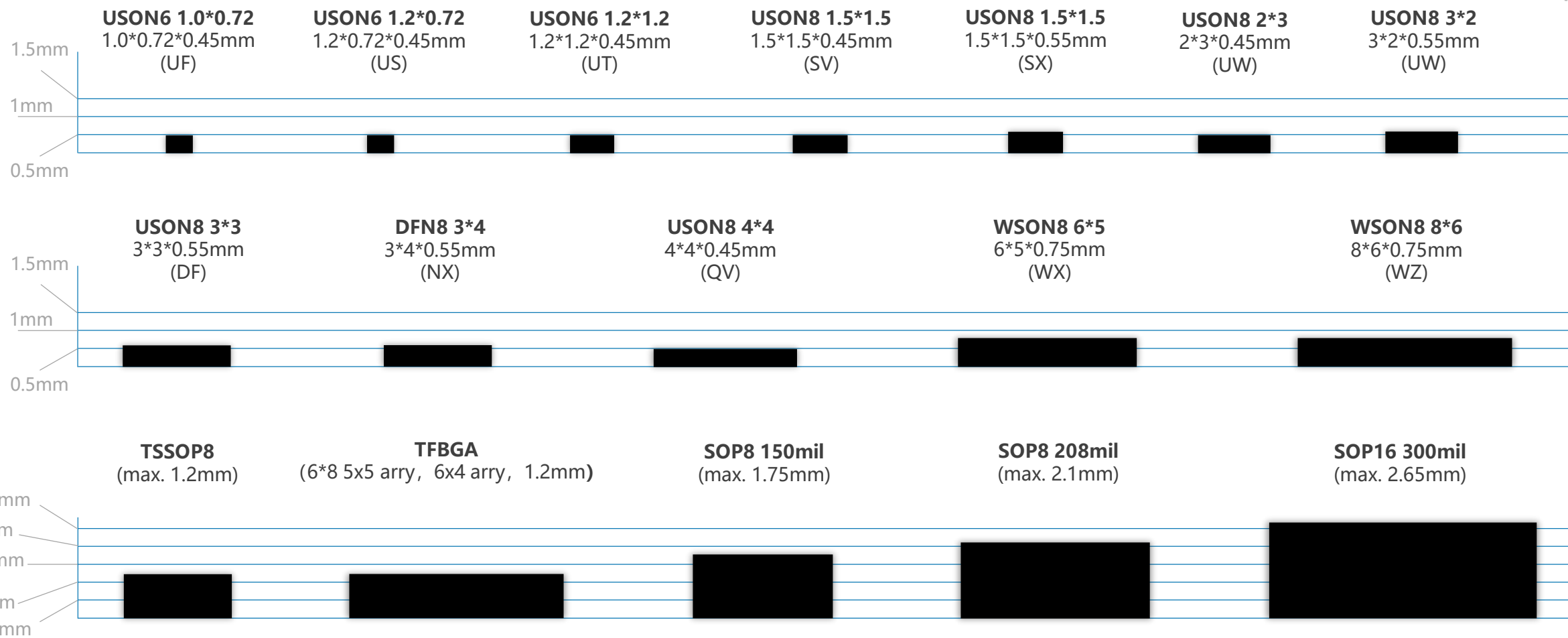
 MP

 Sample

FLASH Roadmap – Packages



FLASH Roadmap – Packages Thickness



FLASH Ordering Information

PY **25Q** **32** **H** **B** - **SUH** - **I** **T**

1 **2** **3** **4** **5** **6** **7** **8** **9**

1 Company Designator

PY= Puya Semiconductor
P= Puya Semiconductor

2 Product Family

25Q= Quad SPI interface flash
25D= Dual SPI interface flash

3 Memory Density

32= 32Mb
32S=32Mb

4 Operation Voltage

H= 2.3V~3.6V
L= 1.65V-2.0V
U= 1.65V-3.6V

5 Generation

B=Gen.B
A=Gen.A

6 Package Type

SS= SOP8 150mil
SU= SOP8 208mil
TS=TSSOP8
UX= USON8 3×2×0.55mm
NX= USON8 3×0.55mm
WX=WSON8 6×5×0.75mm
WF= WAFER

7 Plating Technology

H= RoHS Compliant Halogen free,Antimony free

8 Device Grade

I= -40°C~85°C
K= -40°C~105°C
E= -40°C~125°C

9 Packing Type

T= TUBE
R= TAPE & REEL
Y= TRAY
W=WAFER

EEPROM Roadmap – Portfolio



PG	Vcc	Interface	Grade	2k	4k	8k	16k	32k	64k	128k	256k	512k	1M	2M	4M		
EEPROM	1.1V-2.0v	I²C	Industry						P24U64/128/256/512A								
									P24U64/128/256B								
	1.65v-3.6V	SPI	Industry						P25CXXXF								
		I²C	Industry	P24CXXXF/G													
	1.7v-5.5v	SPI	Industry			P25CXXXH										P25CXXXH	
		I²C	Industry	P24CXXXA/B/C/D/H										P24CXXXH			
		SPI	Auto Grade I			P25CXXXH											
	I²C	Auto Grade I	P24CXXXC							P24CXXXB		P24CM01H					

➤ Product Group

- IIC
- SPI

Stage:

- MP
- Sample
- UD

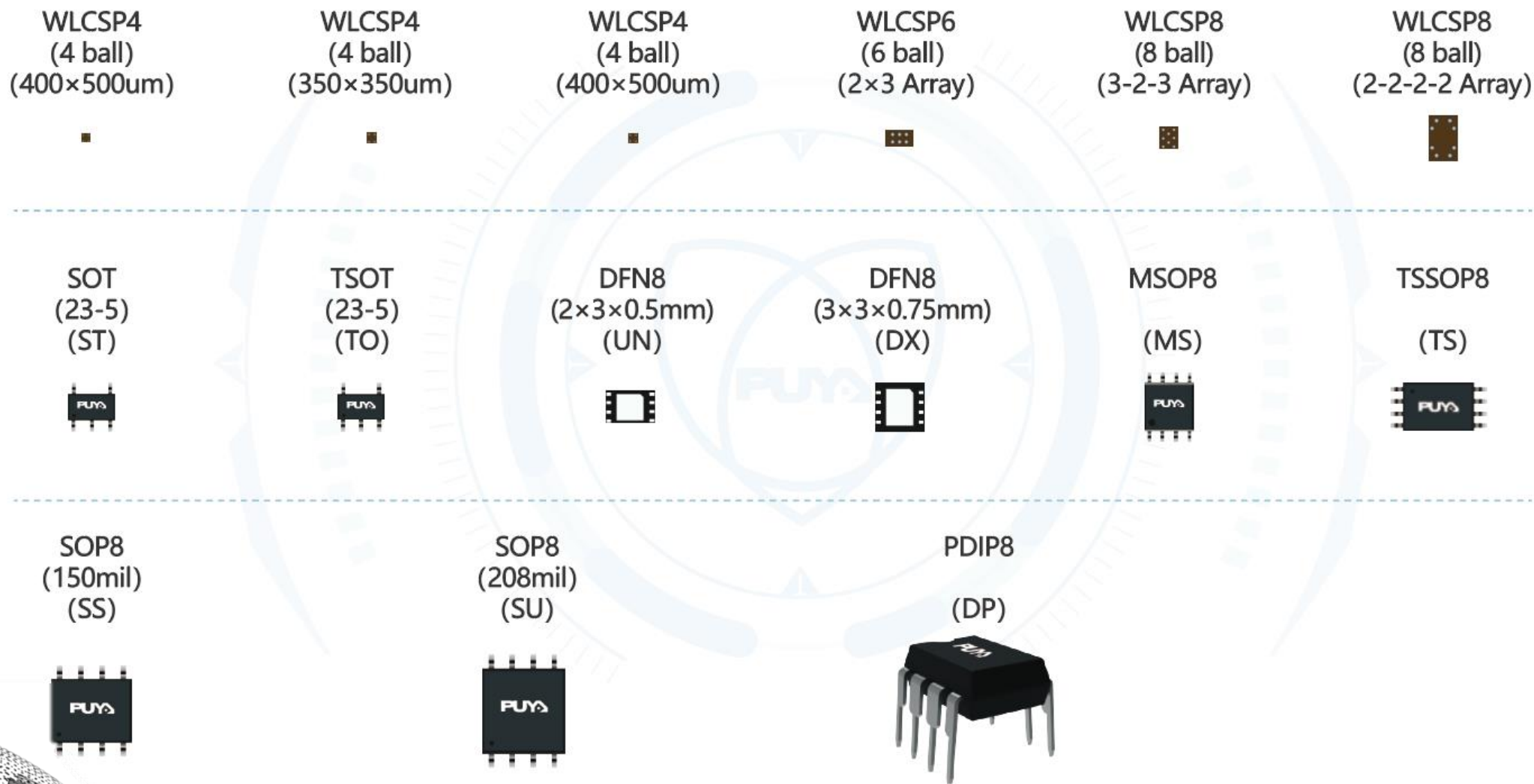
EEPROM

Type

Package

Supply Voltage		2k	4k	8k	16k	32k	64k	128k	256k	512k	1M	2M	4M
I ² C	1.7v-5.5v	●	●	●	●	●	●	●	●	●	●		
	1.65v-3.6v						●	●	●	●	●	●	
	1.65v-3.6v						●	●	●	●	●	●	
	1.7v-5.5v			●	●	●	●	●	●	●	●	●	●
SOP	150mil	●	●	●	●	●	●	●	●	●	●	●	●
PDIP	8-lead	●	●	●	●	●	●						
TSSOP	8-lead	●	●	●	●	●	●	●	●	●	●	●	●
UDFN	2x3	●	●	●	●	●	●	●	●	●	●	●	●
MSOP	8-lead					●	●	●	●	●			
SOT23	5-lead	●	●	●	●								
WLCSP	4 ball					●	●	●	●	●			
	6 ball	●	●	●	●				●				
	8 ball									●	●	●	

EEPROM Roadmap – Packages



EEPROM Ordering Information

P **24C** **32** **C** - **SS** **H** - **M** **I** **T**

1 **2** **3** **4** **5** **6** **7** **8** **9**

1 Company Designator

PY= Puya Semiconductor

2 Product Family

24C=I2C- compatible interface EEPROM
25C= SPI serial access EEPROM

3 Device Density

32= 32B bit

4 Device Reversion

C= Version C
H= Version H
F= Version F
G= Version G

5 Package Type

SS= SOP8 150mil
SU= SOP8 208mil
TS=TSSOP8
UN= USON8
ST= SOT23-5
DP=PDIP8
TO= TSOT23-5
WF= WAFER

6 Plating Technology

H= RoHS Compliant Halogen free,Antimony free

7 Operation Voltage

M= 1.7V~5.5V
N= 1.8V-5.5V
D= 2.5V~5.5V

8 Device Grade

I= -40°C~85°C
K= -40°C~105°C
E= -40°C~125°C

9 Packing Type

T= TUBE
R= TAPE & REEL
W=WAFER

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- **MCU Product Introduction**
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- VCM Product Introduction

MCU Positioning

- ✦ **8b WORLD** - pioneer ARM M0+ to replace 8051/PIC/STM8
 - Leverage [Advanced process](#) & [Superior memory technology](#)
- ✦ **32b WORLD** - ARM M0+/M4 for General Purpose MKT

Flash

MTP

OTP

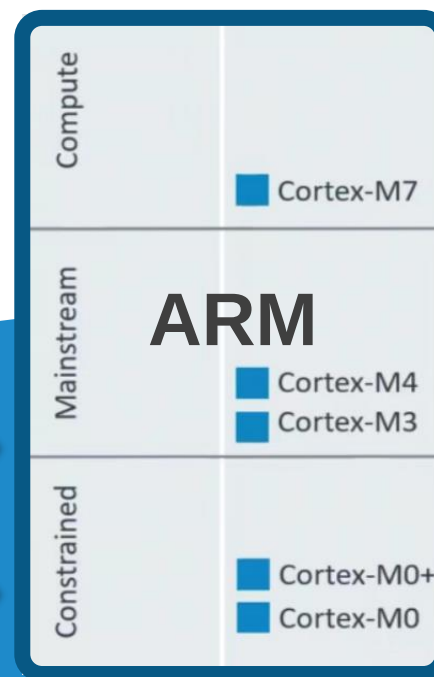
8051

PIC

STM8

Puya M4

Puya M0+



RISC-V

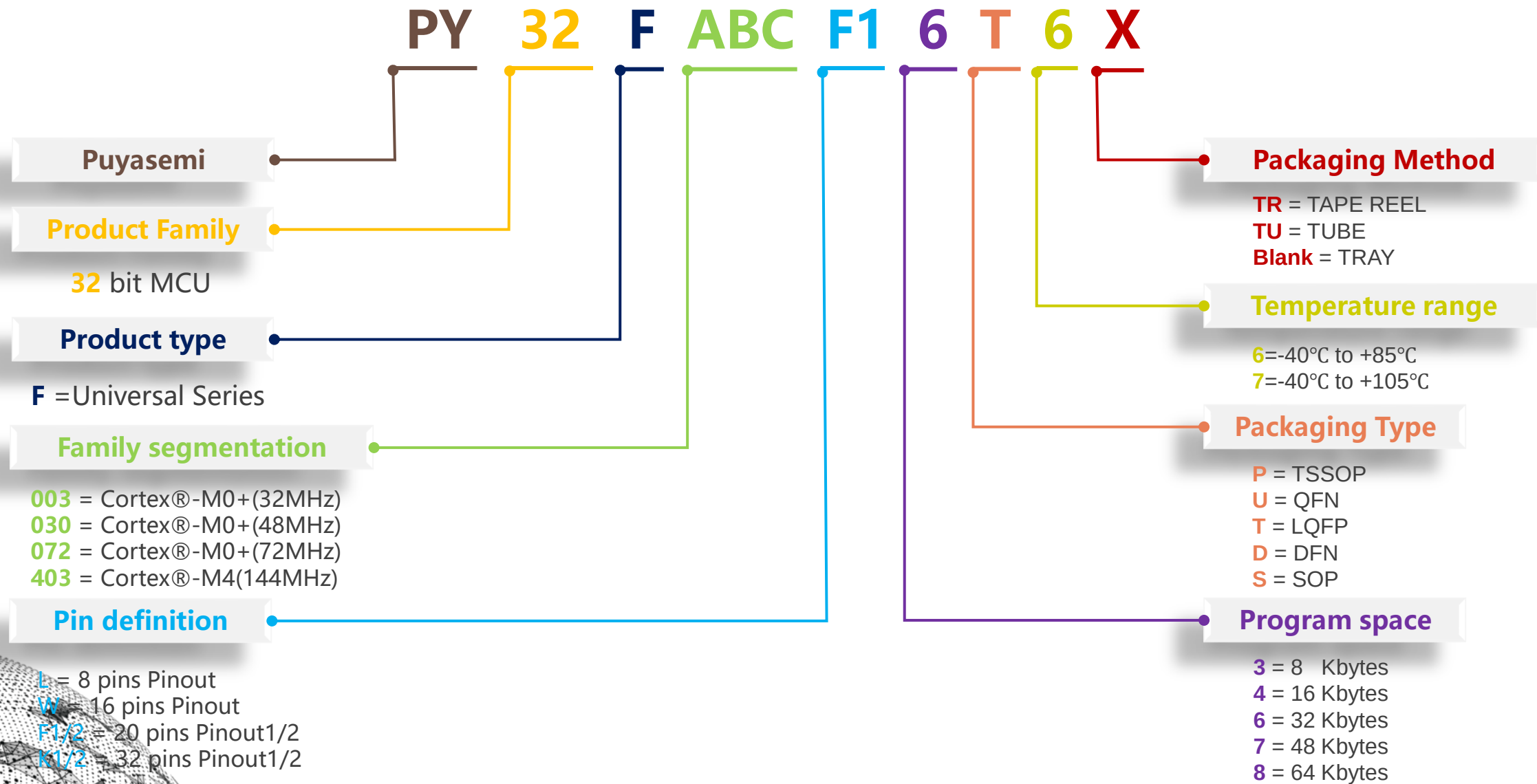
L020/F003**

F030**/F040

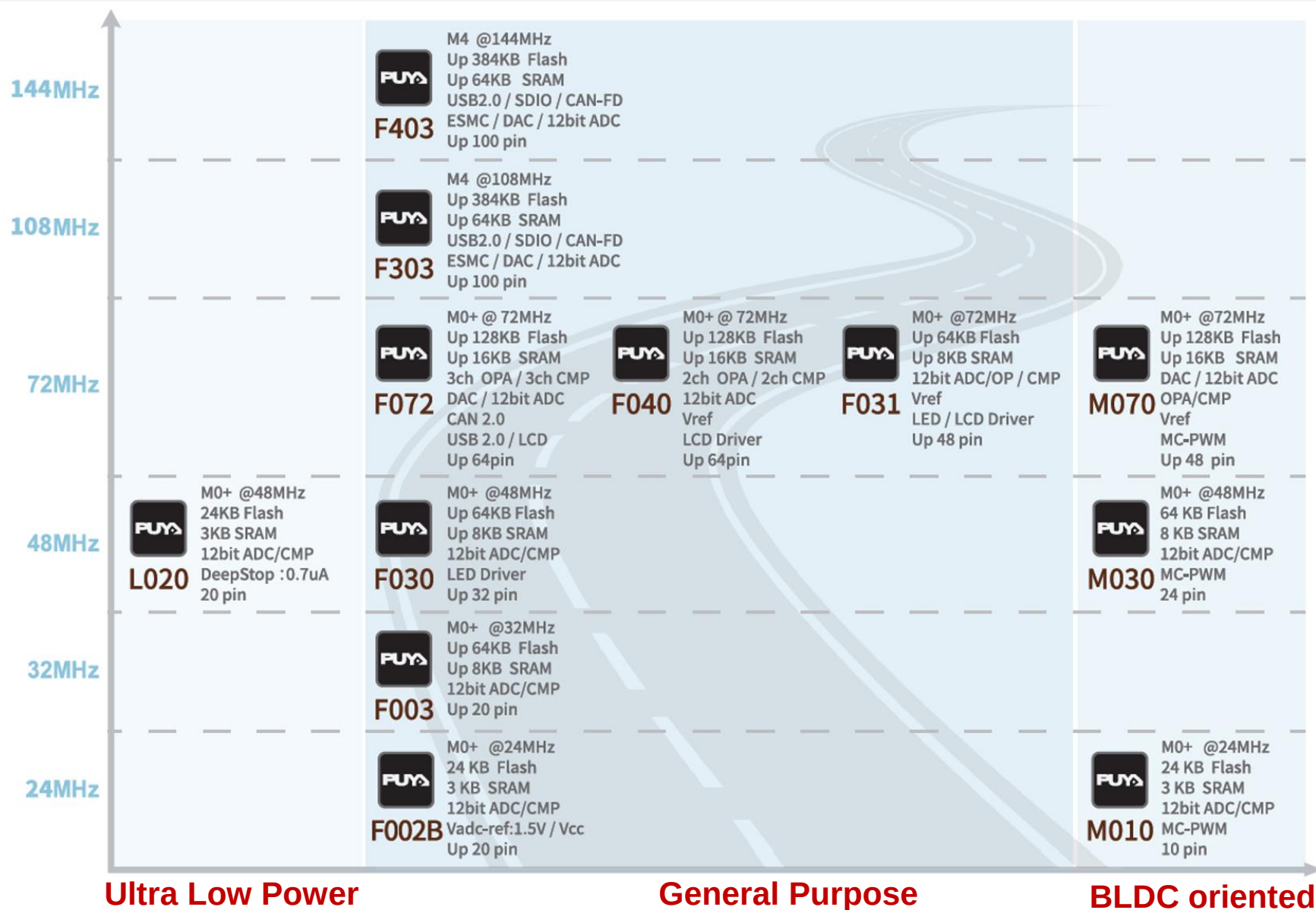
F071/072

F403 ...

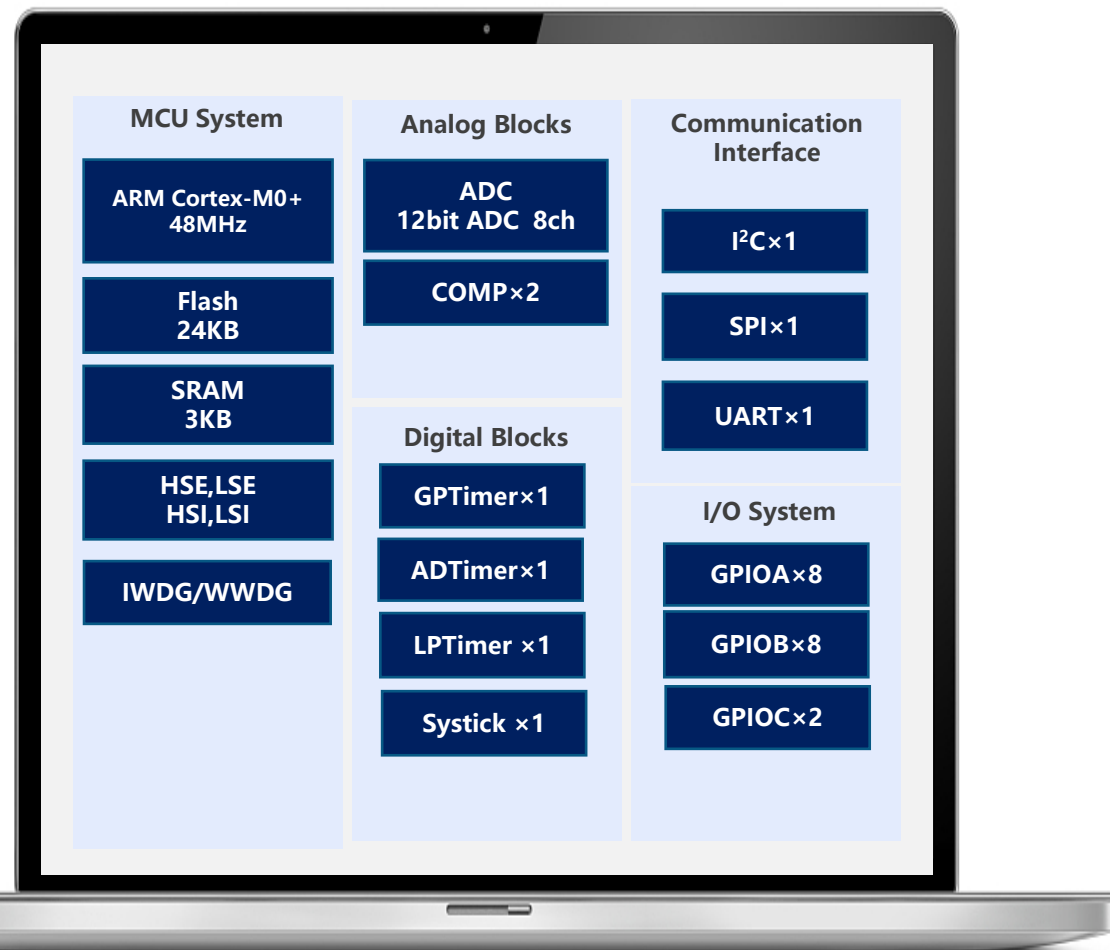
MCU Naming Rule



MCU Roadmap



PY32L020 Series



Typical applications

Fire sensor、Remote control 、 Small H/A etc

Core

- 32 bit ARM Cortex-M0+

Low power consumption

- Icc @ Stop mode: 1.7μA
- Wake up from Stop: 10.6μs

Peripheral resources

- Up to 18 GPIO
- 1*IIC, 1*SPI, 1*USART
- 1*16bit GPTimer,
- 1*ADTimer (BLDC/PMSM)
- 1*LPTimer,
- 1*12bit ADC(8CH),
- 2*COMP
- Unique UID

Flash

- 24K bytes flash
- 3K bytes SRAM

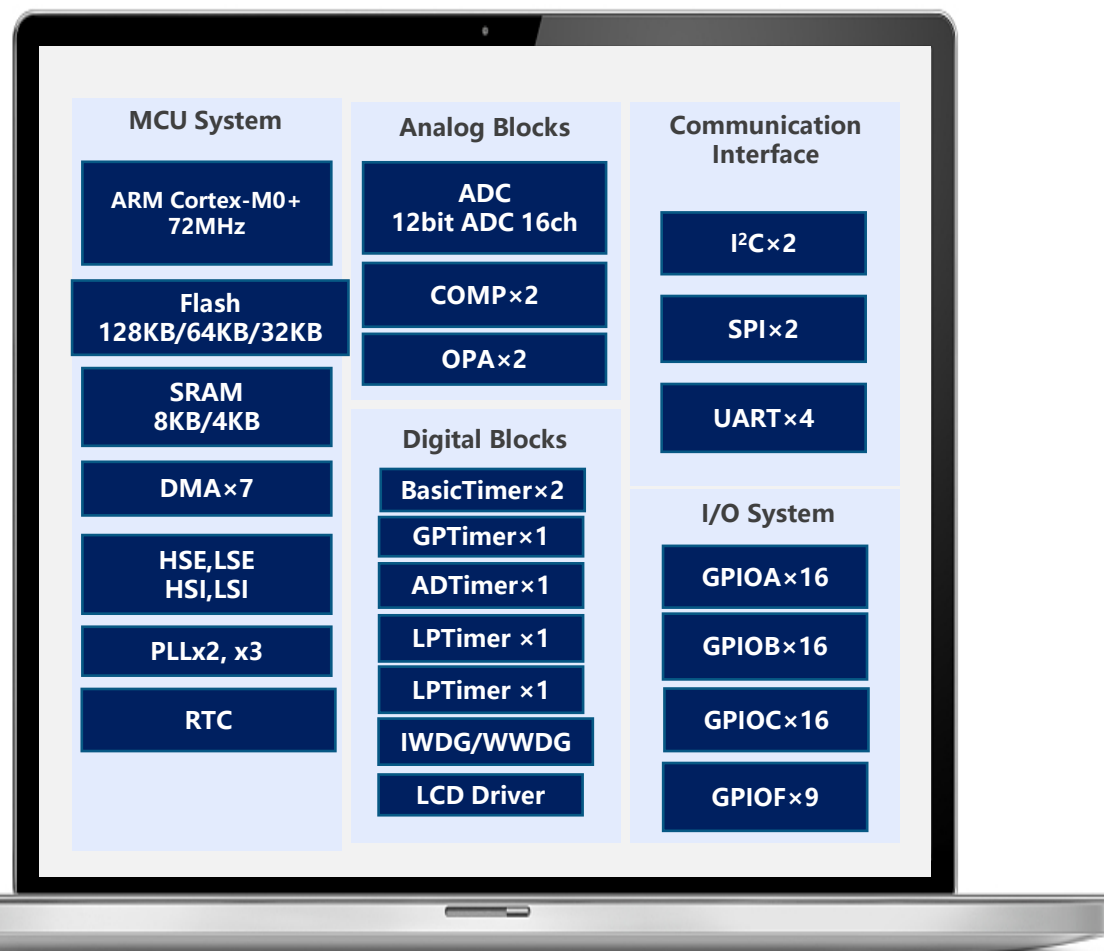
System

- System Clock: HSI,HSE,LSI,LSE
- Frequency up to: **48MHz**
- Voltage supply: 1.7V ~ 5.5V
- Temperature -40°C ~ 85°C
- -40°C ~ 105°C

Package

- QFN20(3*3)
- TSSOP20(6.5*4.4)

PY32F040 Series



Typical applications

Smart H/A, Industrial Instruments, Wireless Charger, Pet trainer, Laser distance measurer, BMS, etc.

Core

- 32 bit ARM Cortex-M0+

Low power consumption

- Icc @ Stop mode : 5.7μA
- Wake up from Stop : 7μs

Peripheral resources

- Up to 57 GPIO
- 2*IIC, 2*SPI, 4*USART, 1*32bit GPTimer, 2*16bit Basic Timer, 1*ADTimer (BLDC/PMSM)
- 1*LPTimer, 2*WDT, RTC
- 1*12bit ADC(16CH),
- 2*COMP, 2*OPA, LCD Driver
- Unique UID

Flash

- 32 ~ 128K bytes flash
- 4 ~ 16K bytes SRAM

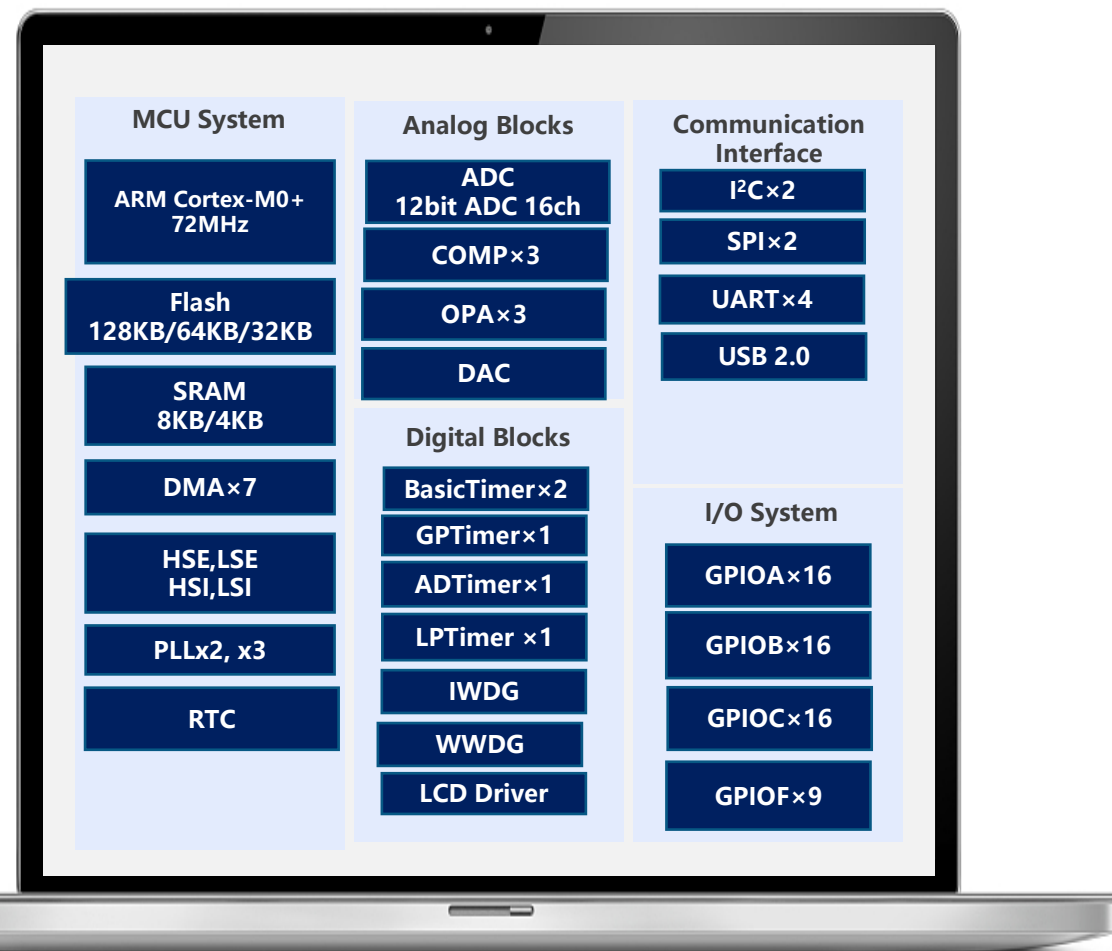
System

- System Clock: HSI, HSE, LSI, LSE, PLL
- Frequency up to: **72MHz**
- Voltage supply: 1.7V ~ 5.5V
- Temperature -40°C ~ 85°C

Package

- QFN32(4*4)
- QFN32(5*5)
- LQFP48(9*9)
- LQFP64 (12*12)

PY32F071 Series



Typical applications

Game hand, Mouse, Keyboard for PC, IPC, Massage device, Industrial, etc

Core

- 32 bit ARM Cortex-M0+

Flash

- 32 ~ 128K bytes flash
- 4 ~ 16K bytes SRAM

Low power consumption

- Icc @ Stop mode: 5.7μA
- Wake up from Stop mode: 7μs

System

- System Clock: HSI, HSE, LSI, LSE, PLL
- Frequency up to : **72MHz**
- Voltage supply : 1.7V ~ 5.5V
- Temperature -40°C ~ 85°C

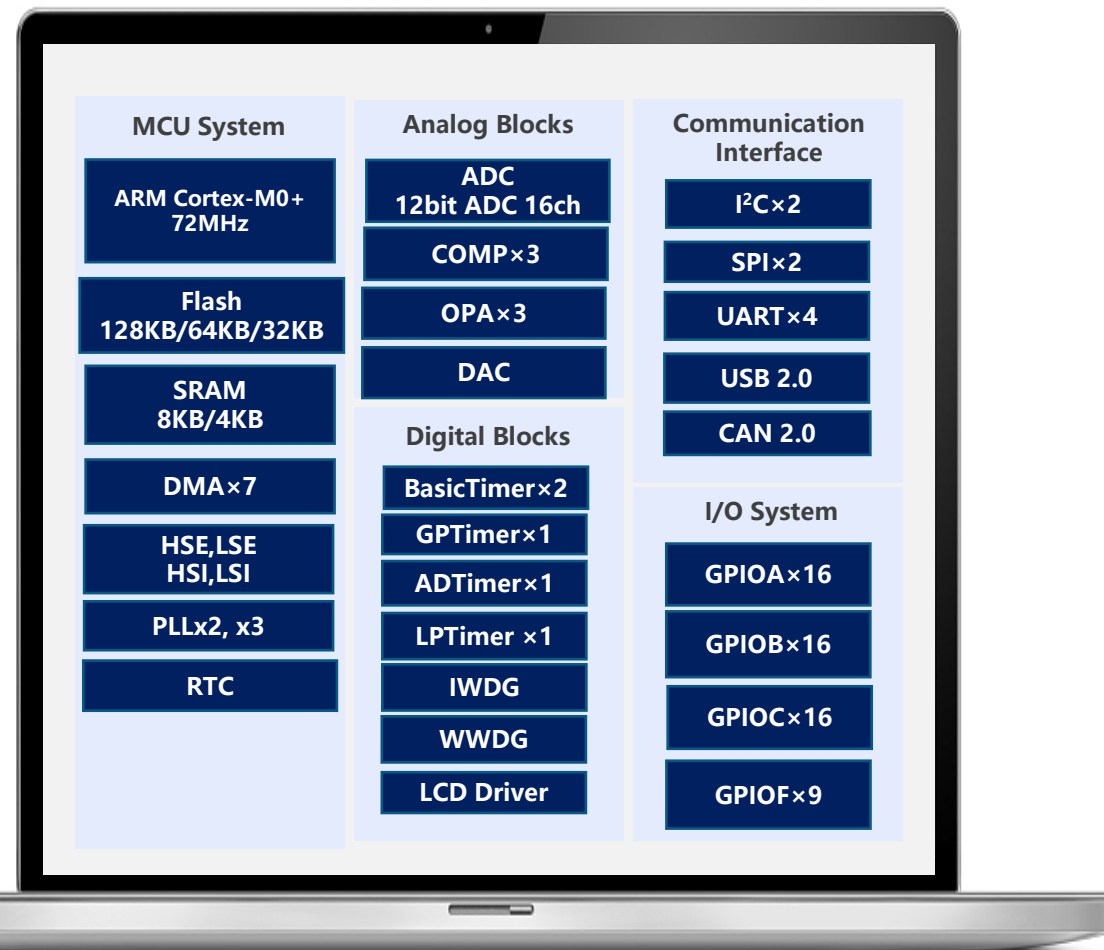
Peripheral resources

- Up to 57 GPIO
- 2*IIC, 2*SPI, 4*USART, 1*32bit GPTimer, 2*16bit Basic Timer, 1*ADTimer (BLDC/PMSM)
- 1*LPTimer, 2*WDT, RTC
- 1*12bit ADC(16CH), 3*COMP, 3*OPA, LCD Driver
- USB 2.0
- Unique UID

Package

- QFN32(5*5)
- QFN48(6*6)
- QFN64(8*8)
- LQFP48(9*9)
- LQFP64 (12*12)

PY32F072 Series



Typical applications

RoE gateway, E-scooter controller, E-scooter panel, Industrial, etc

Core

- 32 bit ARM Cortex-M0+

Flash

- 32 ~ 128K bytes flash
- 4 ~ 16K bytes SRAM

Low power consumption

- Icc @ Stop mode: 5.7µA
- Wake up from stop mode: 7µs

System

- System Clock: HSI, HSE, LSI, LSE, PLL
- Frequency up to : **72MHz**
- Voltage supply : 1.7V ~ 5.5V
- Temperature -40°C ~ 85°C

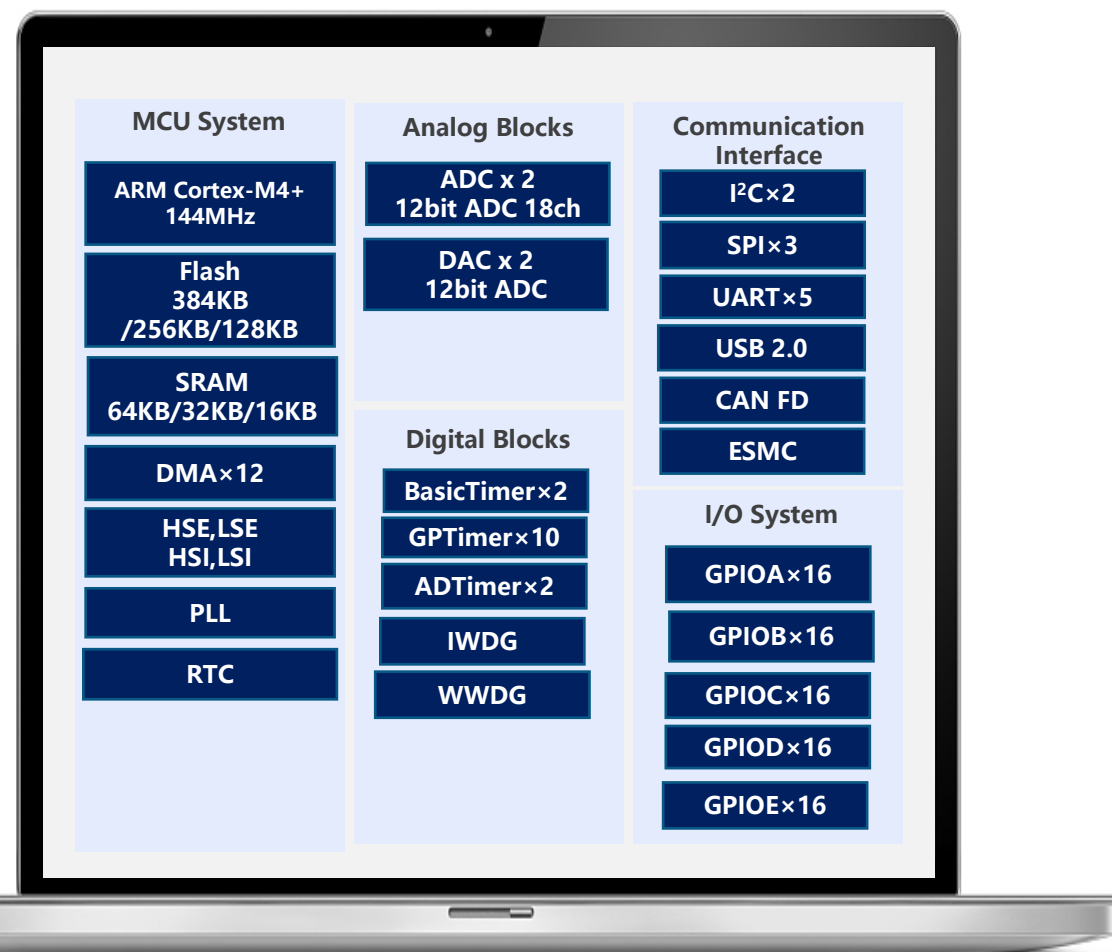
Peripheral resources

- Up to 57 GPIO
- 2*IIC, 2*SPI, 4*USART, 1*32bit GPTimer, 2*16bit Basic Timer, 1*ADTimer (BLDC/PMSM)
- 1*LPTimer, 2*WDT, RTC
- 1*12bit ADC(16CH), 3*COMP, 3*OPA, LCD Driver
- USB 2.0, CAN 2.0
- Unique UID

封装

- QFN32(5*5)
- QFN48(6*6)
- QFN64(8*8)
- LQFP48(9*9)
- LQFP64 (12*12)

PY32F403 Series



Typical applications

Label printer, Stage lights, Walkie-talkie, Water dispenser, Wireless charger, BMS, Industrial. etc.

Core

- 32 bit ARM Cortex-M4F

Flash

- 128 ~ 384K bytes flash
- 16 ~ 64K bytes SRAM

Low power consumption

- Icc @ Stop mode: 5.8μA (
- Wake up from stop mode: 79.5μs

System

- System Clock: HSI, HSE, LSI, LSE, PLL
- Frequency up to : **144MHz**
- Voltage supply : 1.7V ~ 3.6V
- Temperature -40°C ~ 85°C

Peripheral resources

- Up to 80 GPIO
- 2*IIC, 3*SPI, 5*USART, 1*32bit GPTimer, 2*16bit Basic Timer, 2*ADTimer (BLDC/PMSM)
- 10*GPTimer, 2*BasicTimer
- 2*WDT, RTC
- 2*12bit ADC(18CH),
- USB 2.0, CAN FD
- Unique UID

Package

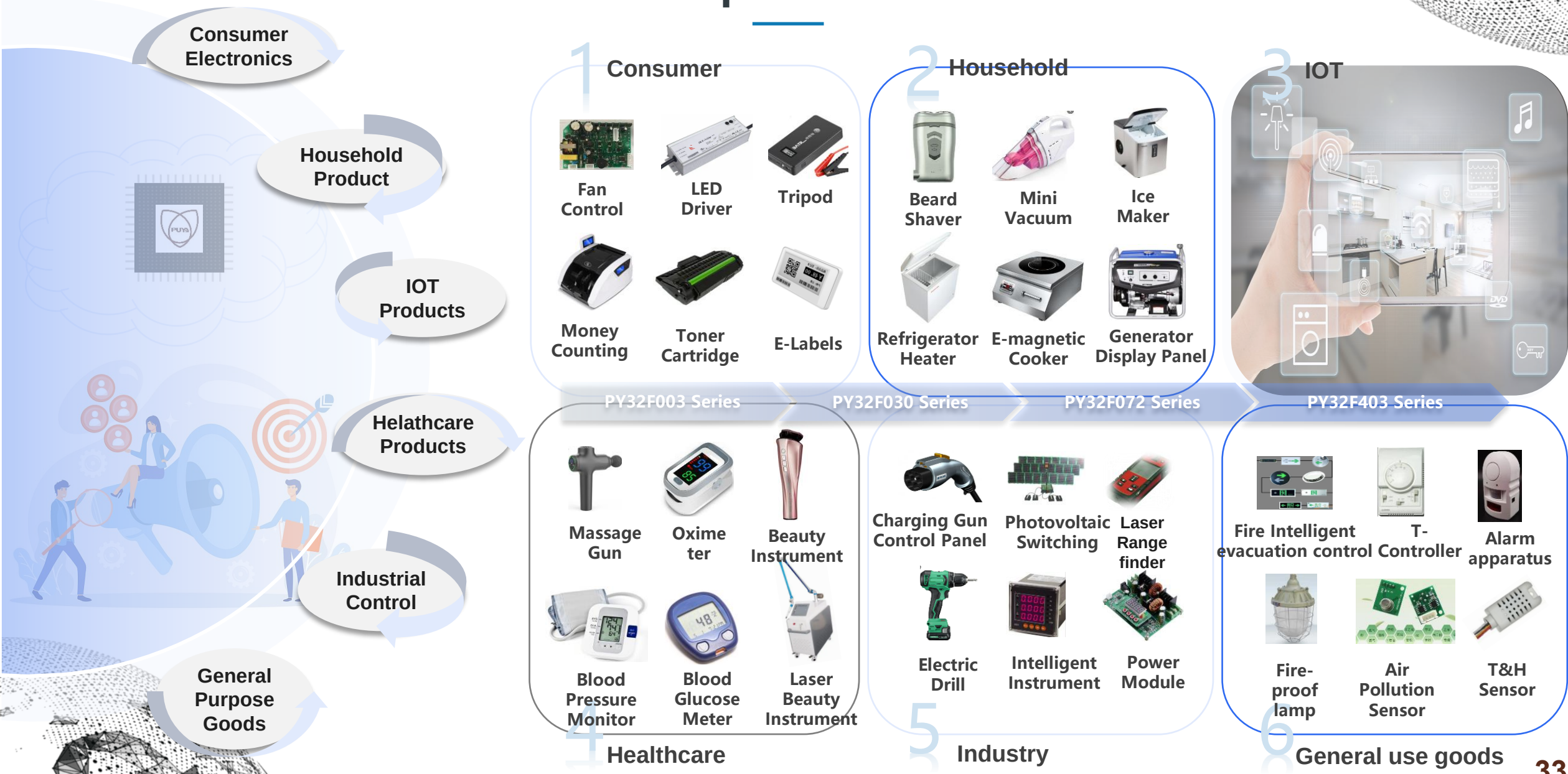
- QFN32(4*4)
- LQFP48(7*7)
- LQFP64 (10*10)
- LQFP100 (14*14)

MCU Business Planning

Puya 32-bit General Purpose MCU Roadmap

	2020	2021	2022	2023	2024	2025	2026	2027
Technology node	55nm eFlash (5V)							
			40nm eFlash (3.3V)					
					40nm-enhanced 5V			
						28nm 3.3V		
MCU Core (ARM)	M0+		M23					
			M4			M33		
							M7	
Entrance level (+ replace 8b MCU)		F003 M0+ 32MHz 64KB Flash 8 to 20pin	F002A M0+ 24MHz 24KB Flash 8 to 20pin	F002B/M010 M0+ 24MHz 24KB Flash 8 to 20pin				
Main stream		F030/031 M0+ 72MHz 64KB Flash 8 to 48pin	F040/072/M070 M0+ 72MHz 128KB Flash 16 to 64pin	F303/403/M090 M4 144MHz 384KB Flash 32 to 100pin	PT088 M0+ 72MHz 256KB Flash 20 to 64pin			
Ultra Low power				L020/T020 M0+ 48MHz 24-32KB Flash 8 to 28pin	L040 M0+ 48MHz 64KB Flash 20 to 48pin	L060 M23 72MHz 256KB Flash 32 to 100pin	L080 M33 200MHz 1MB Flash 32 to 144pin	
High performance					G430/530 M4 200MHz 1MB Flash 32 to 144pin	A530 (AUTO) M33 200MHz 1MB Flash 32 to 144pin	G730 M7 360MHz 2MB Flash 64 to 144pin	H700 M7 400MHz, w/ M4 2MB+ Flash 64 to 144pin
Total Product line Shipment (Target)			100M pcs	260M pcs	900M+ pcs (T)	1.5B+ pcs (T)	2.5B+ pcs (T)	40B+ pcs (T)

General Purpose MCU Market





Water dispenser



Game Handle



Motor Application



IPC



Industrial Instruments



Wireless Charger



Laser Distance Measurer



Label Printer



Massage Device



Stage Light

Ecological support

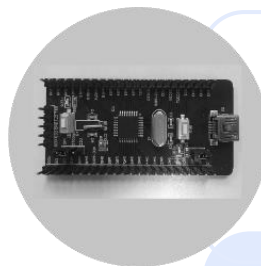
Development Environment



Operation System

Development Tool

Development Kits



- Support Keil uVision v5.28 or higher version development environment
- Support PY32F full range of HAL/LL library development
- 3.3V/5V power supply
- Offer USB interface power for emulator or target MCU
- Abundant I/O port resources

PY-Compiler

- Support Windows operating systems. No driver is required in Win10
- Support Keil uVision v5.28 or higher version development environment
- Support PY32F programming environment
- Support for UART with asynchronous serial communication
- USB cable connected to computer to offer 3.3V/5V power supply
- Target chip adaptive, support PY32 programming via SWD debug port



PY-Burner



- Support self-start, stop and offline burning
- Support various erasing methods, auto empty chip skip, no need to wait
- Support 3.3V and 5V voltage output
- Support touch screen and multiple languages
- Thousands of programming storage capacity
- HID+ WinUSB-level dual-mode driverless architecture
- Millisecond chip response

ARM
Universal
platform

Mature
engineering
cases

Software
Library

Application
Documents

FAE
Support

project
supports

Program Support

Agenda

- Puya Company Profile
- EEPROM & NOR Flash Product Introduction
- MCU Product Introduction
- **SPD Product Introduction**
- VCM Product Introduction

SPD Introduction

➤ SPD(Serial Presence Detect)

Every DIMM should have a SPD data, which records many important information about the memory. For example, the chip and module manufacturer of the memory, operating frequency, operating voltage, speed, capacity, voltage and address bandwidth of rows and columns, etc. The SPD data is usually written into the EEPROM by the DIMM manufacturer according to the actual performance of the memory before it is shipped from the factory.

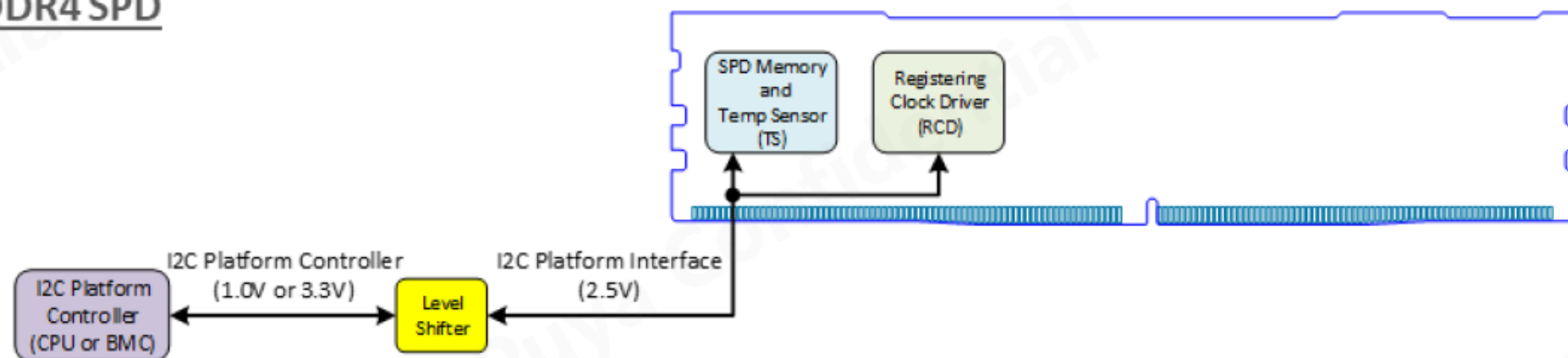
➤ SPD vs DDR

DRAM Type	EE Capacity	Protection	TS	Hub	Interface
DDR 1	256 Byte	128 Byte			I ² C
DDR 2	256 Byte	128 Byte			I ² C
DDR 3	256 Byte	128 Byte			I ² C
DDR 4	512 Byte	128 Byte each	Yes		I ² C
DDR 5	1024 Byte	64 Byte each	Yes	Yes	I ² C & I ³ C

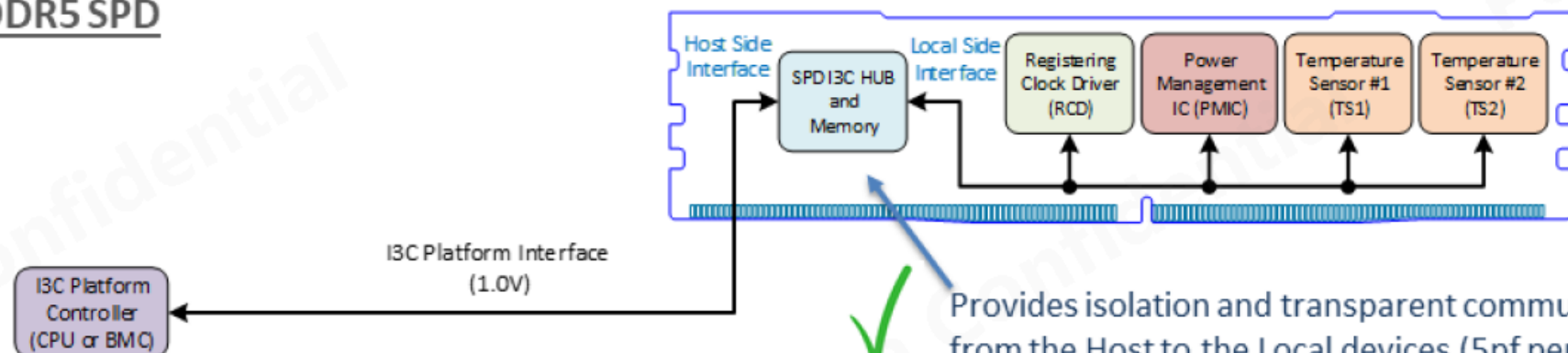
DDR 4 SPD Vs DDR 5 SPD in DIMM

Function	SPD4	SPD5
EEPROM Size	512 Byte	1024 Byte
TS	Optional	Yes
I2C	Yes	Yes
I3C	No	Yes
Hub	No	Yes

DDR4 SPD



DDR5 SPD

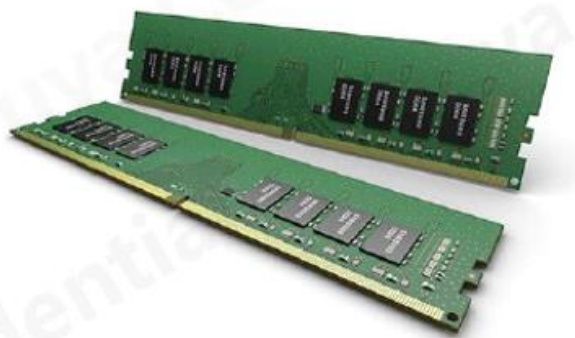


Provides isolation and transparent communication from the Host to the Local devices (5pf per device)

Source: Intel

Puya SPD 5 in DIMM Market

UDIMM for desktop



RDIMM and LRDIMM for servers



SODIMM for laptops

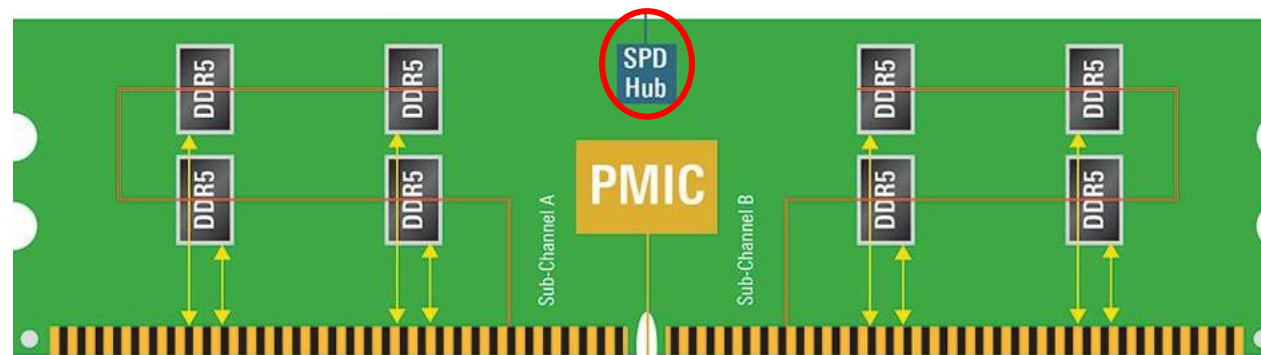


DIMM	Application	Requirements	
UDIMM	Desktop	SPD5	
SODIMM	Laptop	SPD5	
RDIMM	Server	SPD5	TS
LRDIMM	Server	SPD5	TS

Puya SPD5

- ✦ SPD HUB Chip + Thermal Sensor & 8Kb EEPROM
- ✦ SPD HUB Chip +8Kb EEPROM
- ✦ Temperature Sensor

Part number	Functionality
PYSPD5118	HUB + Thermal Sensor + SPD EEPROM
PYTS5111	Temperature Sensor
PYSPD5108	HUB + SPD EEPROM



PYSPD5118

SPD Hub with TS & SPDEE for DDR5 Memory Modules

SPD HUB Features

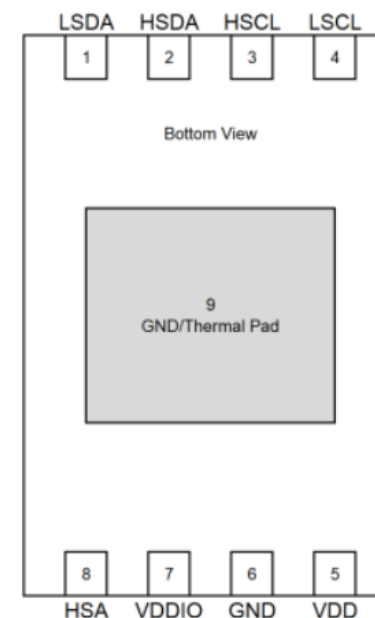
- Hub function with single 5pF max load to the Host bus
- Up to 8 slaves supported with pass-through function and address translation
- Two wires programmable I2C Open-Drain or I3C Push-Pull serial bus interface
- JEDEC DIMM Serial Presence Detect (SPD5) + TS compliant
- 1.8V power supply and 1.0V IO supply
- Up to 1MHz in I2C and 12.5MHz in I3C serial bus speed
- 0.9V – 1.1V Push-Pull IO levels
- One pin selectable Hub address feature via resistor
- Packet Error and Parity Error Check capable
- In Band Interrupt (IBI) feature
- Bus Timeout supported
- Low operating current ~ 1mA (typical)

SPD EEPROM Features

- 8-Kbits of Serial EEPROM organized as 16 blocks of 64 bytes each
- Individual block write protection via software commands on 16 blocks
- Override protection feature during factory programming
- Read/Write operations via the Hub interface
- Supports partial Page and full Page write operations
- Endurance: 100k write cycles | Data retention: 100 years @ 25c

Temperature Sensor Features

- Same as PY5111



D9-TDFN2x3

PYTS5111

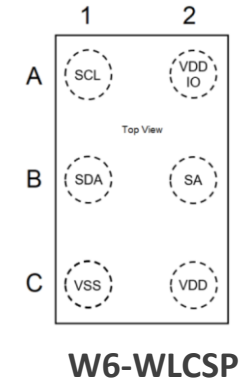
Temperature Sensor for DDR5 Memory Modules

Serial Interface Features

- Two wires programmable I2C Open-Drain or I3C Push-Pull serial bus interface
- 1.8V power supply and 1.0V IO supply
- Up to 1MHz in I2C and 12.5MHz in I3C serial bus speed
- 0.9V – 1.1V Push-Pull IO levels
- One pin selectable device address
- Packet Error and Parity Error Check capable
- In Band Interrupt (IBI) feature
- Bus Timeout supported
- Low operating current ~ 1mA (typical)
- 6-Ball WLCSP 0.8mm X 1.3mm & 9-pad Thin DFN (2 x 3 x 0.8mm) with thermal pad

Temperature Sensor Features

- Highly accurate B-grade digital temperature measurements
- $\pm 1.0^{\circ}\text{C}$ accuracy (maximum) over the $+75^{\circ}\text{C}$ to $+95^{\circ}\text{C}$ range
- $\pm 2.0^{\circ}\text{C}$ accuracy (maximum) over the $+40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$ range
- $\pm 3.0^{\circ}\text{C}$ accuracy (maximum) over the -40°C to $+125^{\circ}\text{C}$ range
- ADC temperature-to-digital converter with 0.25°C resolution
- Low/High and Critical Low/High temperature monitoring events with dedicated configuration registers
- Read/Write operations via the Hub interface



PYSPD5108

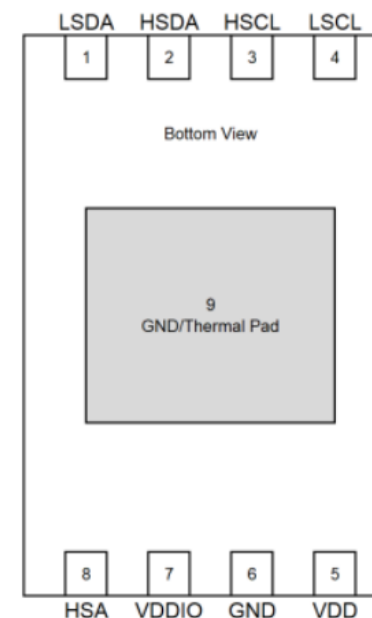
SPD Hub without TS for DDR5 Memory Modules

SPD HUB Features

- Hub function with single 5pF max load to the Host bus
- Up to 8 slaves supported with pass-through function and address translation
- Two wires programmable I2C Open-Drain or I3C Push-Pull serial bus interface
- JEDEC DIMM Serial Presence Detect (SPD5) + TS compliant
- 1.8V power supply and 1.0V IO supply
- Up to 1MHz in I2C and 12.5MHz in I3C serial bus speed
- 0.9V – 1.1V Push-Pull IO levels
- One pin selectable Hub address feature via resistor
- Packet Error and Parity Error Check capable
- In Band Interrupt (IBI) feature
- Bus Timeout supported
- Low operating current ~ 1mA (typical)

SPD EEPROM Features

- 8-Kbits of Serial EEPROM organized as 16 blocks of 64 bytes each
- Individual block write protection via software commands on 16 blocks
- Override protection feature during factory programming
- Read/Write operations via the Hub interface
- Supports partial Page and full Page write operations
- Endurance: 100k write cycles | Data retention: 100 years @25c



D9-TDFN2x3

Puya SPD – Supplier Chain

PN	Foundry	Assembly
PYSPD51XXA		
PYSPD51XXB		

Puya SPD – Supplier Chain Plan

Part number	Functionality	Foundry	Mass Production
PYSPD5118A	SPD HUB with Thermal Sensor	SMIC	MP
PYSPD5111A	Temperature Sensor	SMIC	MP
PYSPD5108A	SPD HUB w/o Thermal Sensor	SMIC	MP
PYSPD5118B1	SPD HUB with Thermal Sensor	GlobalFoundries	Oct-24
PYSPD5111B1	Temperature Sensor	GlobalFoundries	Oct-24
PYSPD5108B1	SPD HUB w/o Thermal Sensor	GlobalFoundries	Oct-24

- Has set up GF as second source
- Customer Sample from Aug 2024

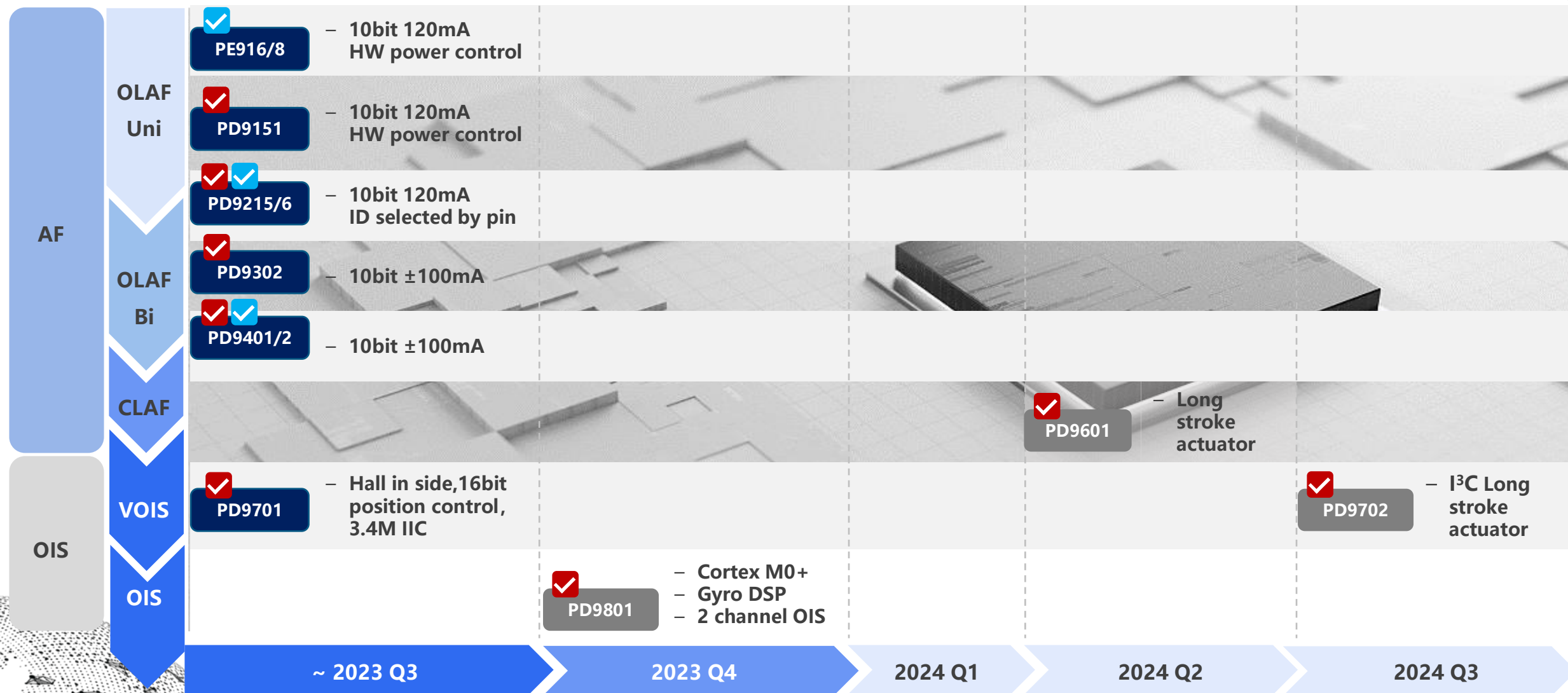
Agenda

- Puya Company Profile
- EEPROM & NOR Flash Product Introduction
- MCU Product Introduction
- SPD Product Introduction
- **VCM Product Introduction**

VCM Driver Roadmap

✓ EE Embedded ✓ IO 1.2/1.8V

■ MP ■ ES ■ PLAN



VCM Driver Family

Driver series with advanced CMOS technology

- OLAF Driver with EEPROM options
- VOIS driver
- OIS driver with ARM Cortex M0+

Driver	Direction	PN	EEPROM	IO 1.8V	IO 1.2/1.8V	CE	ID	Mass Production	Sample Schedule
OLAF	Uni	PD9151	—		■			■	
	Bi	PD9302	—		■			■	
OLAF With EEPROM	Uni	PE916	8KB	■		■		■	
		PE918	16KB	■		■		■	
	Bi	PD9215	10KB		■		■	■	
		PD9216	16KB		■		■	■	
		PD9401	8KB		■			■	
		PD9402	16KB		■			■	
VOIS	—	PD9701	—		■			■	
OIS	—	PD9801	—		■				2023 Q4

Note:

Bi: Bi-direction, Uni: Uni-direction
CE: Chip enable, ID: Slave ID selection



Thank you!