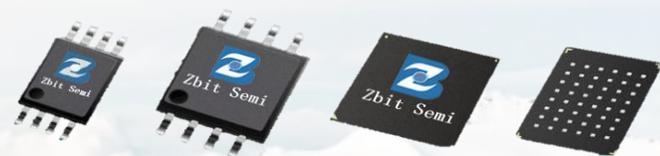




恒烁半导体（合肥）股份有限公司  
Zbit Semiconductor, Inc.

# Company Presentation

2024Q1





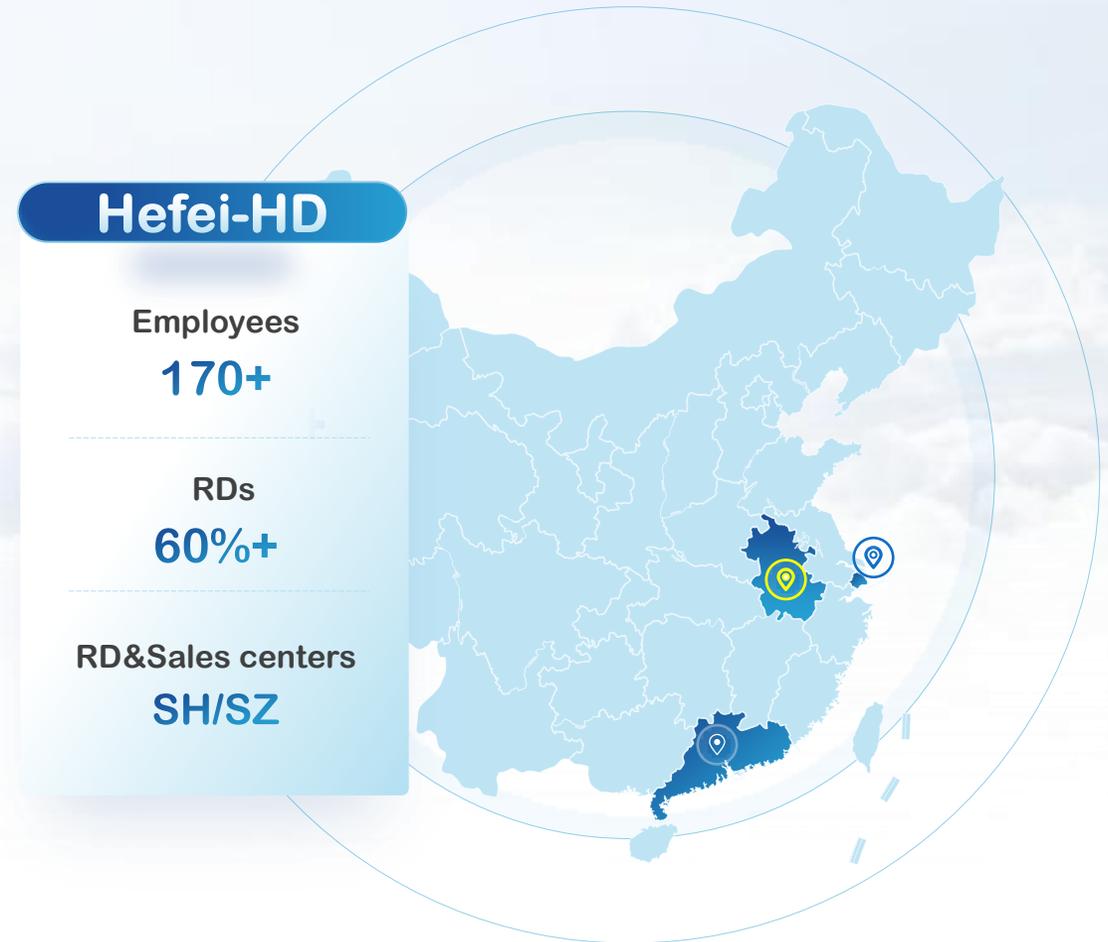
# Company Profile

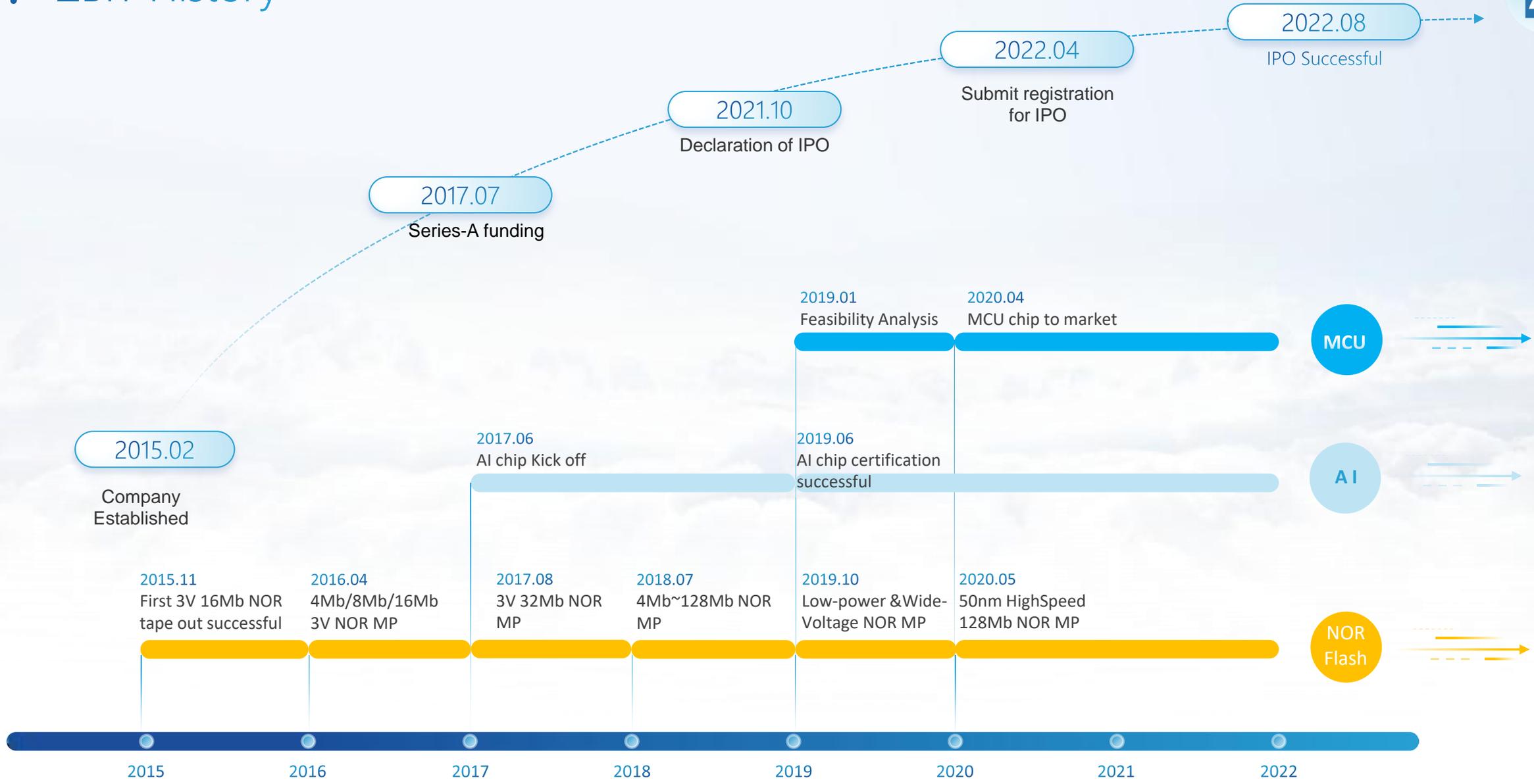
PART 01





ZBIT founded in 2015 , is a famous fabless semiconductor company in China , IPO in Shanghai Stock exchange in 2022.08.29







### Deep Cooperation with Key FAB



Strategic partner from 2015, Sign capacity assurance agreement, Ensure wafer supply, Advanced 50nm process for NOR Flash and 55nm process for MCU products.



Global top5 and China top1 FAB, The most advanced IC process platform in China

### Good wafer package & test partners



Deep cooperation with upstream suppliers & partners

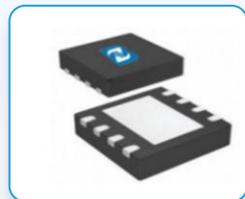


Company Product

-- FLASH

PART 02



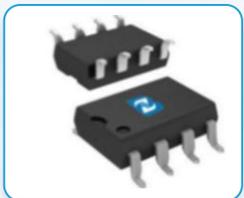


Full serial products:Nor Flash cover 3V、1.8V、1.65~3.6V  
Nand Flash: SPI NAND , SD NAND,PPI NAND and EMMC

High performance & Low-power leading market

The most advanced process: 50nm for Nor Flash

Full capacity: Nor FLASH 1Mb~512Mb  
Nand flash 1Gb~4Gb(SLC),32Gb~64Gb(MLC)



Applications & Markets



智能手表



健身手环



电视机



路由器



智能电表



网络摄像头



TWS 耳机



机顶盒



智能玩具



行车记录仪



蓝牙音箱



手机



电脑



POS 机



家电

Well-known customer list for ZBIT NOR products







# NOR Flash product list

Stock Code: 688416



Vol	Cap	PN	Dual	Quad	QPI	DTR	SOP8 150mil	SOP8 208mil	VSOP8 208mil	TSSOP817 3mil	SOP16 300mil	DFN 6 1.2*1.2mm	DFN 8 1.5*1.5mm	DFN 8 2*3mm	DFN 8 4*3mm	DFN 8 4*4mm	DFN 8 5*6mm	DFN 8 6*8mm	TFBGA- 24 BALL	KGD	
3.0V	2Mb	ZB25D20	√				.	.	.	.		.	.	.	.	.	.	.	.	.	√
	4Mb	ZB25D40	√				.	.	.	.		.		.	.	.	.	.	.	.	√
	8Mb	ZB25D80	√				.	.	.	.				.	.	.	.	.	.	.	√
	256Mb	ZB25Q256	√	√	√	√		.			.							.	.	.	√
	512Mb	ZB25S512	√	√	√	√					.							.	.	.	√
2.3~ 3.6V	4Mb	ZB25VQ40	√	√			.	.	.	.					.	.	.	.	.	.	√
	8Mb	ZB25VQ80	√	√			.	.	.	.					.	.	.	.	.	.	√
	16Mb	ZB25VQ16	√	√			.	.	.	.					.	.	.	.	.	.	√
	32Mb	ZB25VQ32	√	√	√		.	.	.						.	.	.	.	.	.	√
	32Mb	ZB25VQ32D	√	√	√	√	.	.	.								.	.	.	.	√
	64Mb	ZB25VQ64	√	√	√		.	.	.								.	.	.	.	√
	128Mb	ZB25VQ128	√	√	√		.	.	.									.	.	.	√
	128Mb	ZB25VQ128 D	√	√	√	√		.	.								.	.	.	.	√
1.8V	2Mb	ZB25LD20	√				.	.	.	.			.	.	.	.	.	.	.	.	√
	4Mb	ZB25LD40	√				.	.	.	.			.	.	.	.	.	.	.	.	√
	8Mb	ZB25LD80	√				.	.	.	.					.	.	.	.	.	.	√
	8Mb	ZB25LQ80	√	√	√		.	.	.	.					.	.	.	.	.	.	√
	16Mb	ZB25LQ16	√	√	√		.	.	.	.					.	.	.	.	.	.	√
	32Mb	ZB25LQ32	√	√	√		.	.	.	.						.	.	.	.	.	√
	64Mb	ZB25LQ64	√	√	√	√	.	.	.							.	.	.	.	.	√
	128Mb	ZB25LQ128	√	√	√		.	.	.									.	.	.	√
	128Mb	ZB25LQ128 C	√	√	√	√		.	.								.	.	.	.	√
1.6~ 3.6V	2Mb	ZB25WD20	√				.	.	.	.			.	.	.	.	.	.	.	.	√
	4Mb	ZB25WD40	√				.	.	.	.			.	.	.	.	.	.	.	.	√
	8Mb	ZB25WD80	√				.	.	.	.					.	.	.	.	.	.	√
	4Mb	ZB25WQ40	√	√			.	.	.	.					.	.	.	.	.	.	√
	8Mb	ZB25WQ80	√	√			.	.	.	.					.	.	.	.	.	.	√
	16Mb	ZB25WQ16	√	√			.	.	.	.					.	.	.	.	.	.	√



Type	Configuration	2023		2024				2025				2026			
		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2		
SPI NAND	3.3V SLC (x1, x2, x4) WSON8x6 Internal ECC, 2KB Page	1Gb				1Gb									
		2Gb				2Gb									
		4Gb				4Gb									
														1~4Gb, 1.8V BGA24/WSON8	
SD NAND	3.3V SLC/MLC LGA8x6, SD 2.0 Internal ECC, 2KB Page	1Gb				1Gb									
		4Gb				4Gb									
		2Gb				2Gb									
		32 & 64Gb				32 & 64Gb									
												1~4Gb & 32~64Gb, 1.8V LGA8			
PPI NAND	3.3V SLC 25ns BGA63/BGA24(5x5 ball) 4b/528B ECC, 2KB Page													2Gb	
														1&4&8Gb, 3.3/1.8V TSOP48/BGA63	



Type	Configuration	2024				2025				2026	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Legacy	eMMC5.1, BGA153 VCC 3.3V, VCCQ 1.8V SDR/DDR/HS200/HS400	8 & 32GB				8 & 32 GB*					
		64 & 128GB				64 & 128GB*					
Mainstream	UFS2.2, BGA153 VCC 3.3V, VCCQ2 1.8V M-PHY 3.0, UniPro 1.6					64~256GB					
	UFS3.1, BGA153 VCC 2.5V, VCCQ 1.2V M-PHY 4.1, UniPro 1.8									128~512GB	

\*: Depend on Requirement

Planning

CS MP

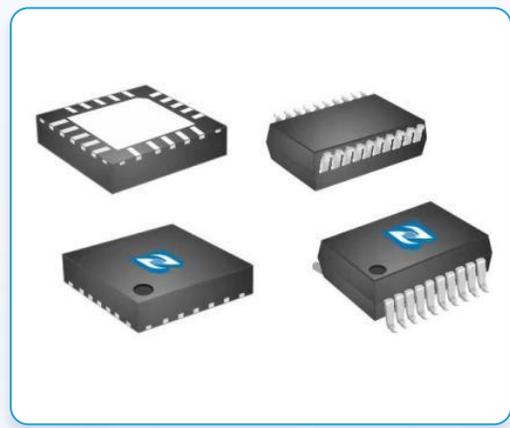


Company Product

-- MCU

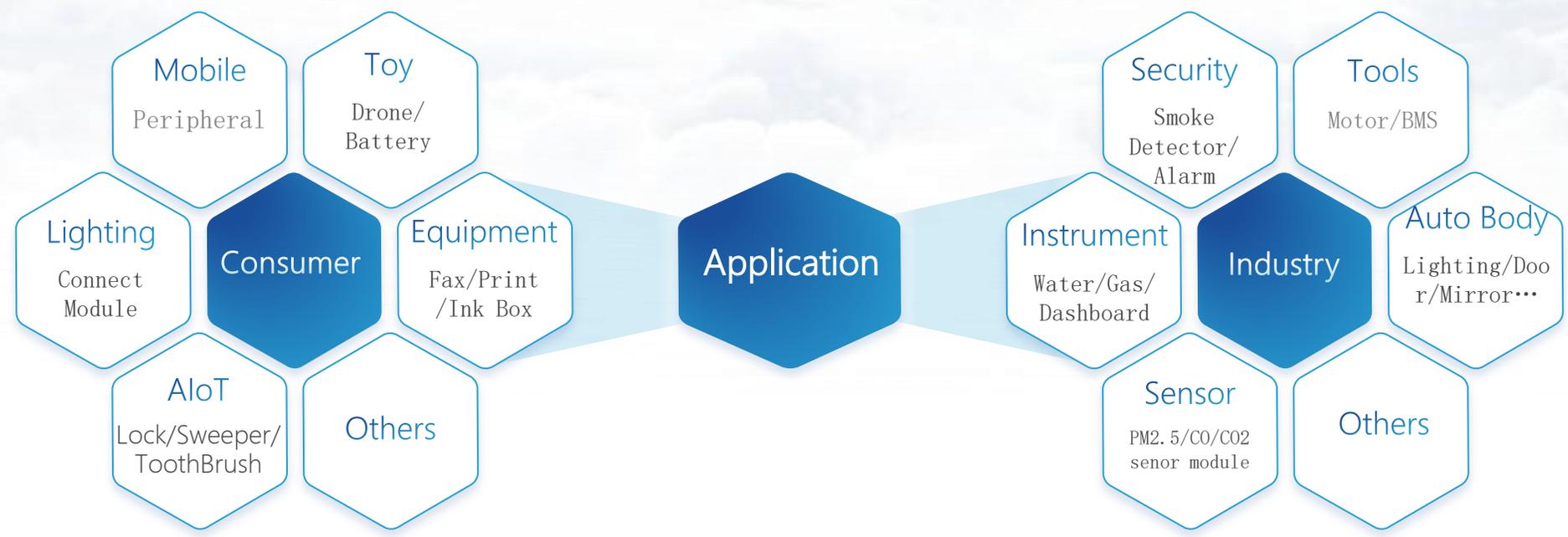
PART 03





- High cost performance
- Low-power
- 55nm process
- High reliability

## Well-known customer list for ZBIT MCU products





- MCU design with high performance ARM Cortex-M core , Ultra low power consumption feature , with high performance Timer , include UART , IIC , SPI digital Interface and ADC , OPA , VC analog interface etc.
- Cooperation with the best IP partners such as ARM/IBM/SST etc. ensure the high quality and reliability for MCU products



- *Low power, High performance, Low cost*
- *Standard cell library, I/O, complier*

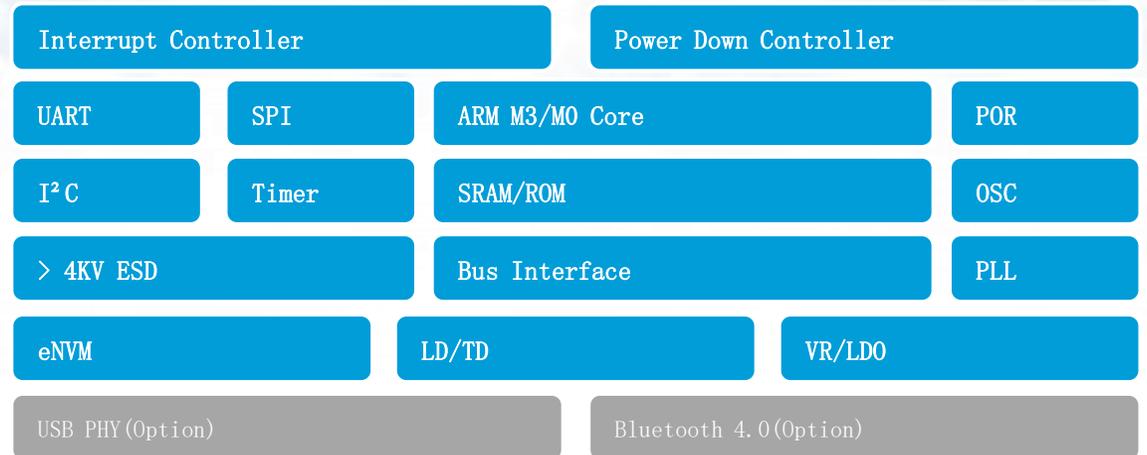


- *65nm RF*
- *45nm&65nm Low power*



- *High reliability, Safety*
- *e-Flash*

## MCU IP Platform





## ARM® Cortex® -M0+ ZB32L0 系列 32-Bit MCU 选型表

型号	主频 MHz	Flash	SRAM	DMA	I/O	定时器								通讯										模拟						封装				
						Ad Timer	G Timer	B Timer	LP Timer	AWK Timer	PCA	RTC	I-W WDG	UART	USART	LP UART	IIC	IIS	SPI	QSPI	One WIRE	12bit ADC	LVD	VC	OPA	DAC	CRC	TRNG	AES		内部温度传感器	USB 2.0	CAN	SDIO
CX32L003F8Q6	24	64 K	4 K	-	16	1	1	2	1	1	1	1	2	2	-	1	1	-	1	-	1	7	1	1	-	-	1	-	-	-	-	-	-	QFN20(3x3)
CX32L003F8P6	24	64 K	4 K	-	16	1	1	2	1	1	1	1	2	2	-	1	1	-	1	-	1	7	1	1	-	-	1	-	-	-	-	-	TSSOP20	
ZB32L003F8Q6	24	64 K	4 K	-	17	1	1	2	1	1	1	1	2	2	-	1	1	-	1	-	1	7	1	1	-	-	1	-	-	-	-	-	QFN20(3x3)	
ZB32L003F8P6	24	64 K	4 K	-	17	1	1	2	1	1	1	1	2	2	-	1	1	-	1	-	1	7	1	1	-	-	1	-	-	-	-	-	TSSOP20	
ZB32L030G8P6	24	64 K	8 K	-	22	3	4	2	1	1	1	1	2	3	-	-	2	-	1	-	1	11	1	2	-	-	1	-	-	-	-	-	TSSOP28	
ZB32L030K8x6	24	64 K	8 K	-	25	3	4	2	1	1	1	1	2	2	-	1	2	-	2	-	-	12	1	2	1	1	1	-	-	-	-	-	LQFP32 QFN32(5x5)	
ZB32L030C8T6	24	64 K	8 K	-	39	3	4	2	1	1	1	1	2	4	-	1	2	-	2	-	1	17	1	2	2	1	1	-	-	-	-	-	LQFP48	
ZB32L032G8P6	64	64 K	16 K	16ch	22	3	4	2	1	1	1	1	2	2	2	-	2	1	1	1	1	11	1	2	-	-	1	1	1	1	-	-	TSSOP28	
ZB32L032K8x6	64	64 K	16 K	16ch	25	3	4	2	1	1	1	1	2	2	1	1	2	1	2	1	-	12	1	2	1	1	1	1	1	1	-	-	-	LQFP32 QFN32(5x5)
ZB32L032C8T6	64	64 K	16 K	16ch	39	3	4	2	1	1	1	1	2	2	2	1	2	1	2	1	1	17	1	2	2	1	1	1	1	1	-	-	-	LQFP48

x: T为LQFP封装, Q为QFN封装



## ARM® Cortex® -M3 ZB32L1 系列 32-Bit MCU 选型表

型号	主频 MHz	Flash	SRAM	DMA	I/O	定时器								通讯								模拟					CRC	TRNG	AES	内部温度 传感器	USB 2.0	CAN	SDIO	封装		
						Ad Timer	G Timer	B Timer	LP Timer	AWK Timer	PCA	RTC	H-W WDG	UART	USART	LP UART	IIC	IIS	SPI	QSPI	One WIRE	12bit ADC	LVD	VC	OPA	DAC										
*ZB32L103CBx6	72	128 K	32K	16ch	39	3	4	2	1	1	1	1	2	2	3	1	2	2	3	1	1	10	1	2	2	1	1	1	1	1	1	1	1	1	1	LQFP48 QFN48
*ZB32L103RBT6	72	128 K	32K	16ch	51	3	4	2	1	1	1	1	2	2	3	1	2	2	3	1	1	16	1	2	2	1	1	1	1	1	1	1	1	1	1	LQFP64
*ZB32F103CCT6	96	256 K	64K	16ch	39	3	4	2	1	1	1	1	2	2	3	1	2	2	3	1	1	10	1	2	2	1	1	1	1	1	1	1	1	1	1	LQFP48
*ZB32F103RCT6	96	256 K	64K	16ch	51	3	4	2	1	1	1	1	2	2	3	1	2	2	3	1	1	16	1	2	2	1	1	1	1	1	1	1	1	1	1	LQFP64
*ZB32F103VCT6	96	256 K	64K	16ch	82	3	4	2	1	1	1	1	2	2	3	1	2	2	3	1	1	16	1	2	2	1	1	1	1	1	1	1	1	1	1	LQFP100

\*: 开发中

x: T为LQFP封装, Q为QFN封装



M3	低功耗	<b>ZB32L103 (M3)</b> 72M、128KB/32KB CAN、USB 32/48/64 PIN (流片中)	<b>ZB32F103 (M3)</b> 96M、256KB/48KB CAN、USB 48/64/100 PIN (流片中)	
M0	主流型	<b>CX32L003</b> 24M、64KB/4KB RTC、20 PIN	<b>ZB32L030</b> 24M、64KB/8KB OPA、28/32/48 PIN	<b>ZB32L032</b> 64M、64KB/16KB DMA、DAC、OPA 28/32/48 PIN
	超值型	<b>ZB32L003</b> 24M、64KB/4KB RTC、20 PIN	<b>ZB32L002</b> 1.8V 48M 32K/4K 运放、20PIN (立项中)	<b>ZB32L031</b> 48M、64KB/16KB (调研中)

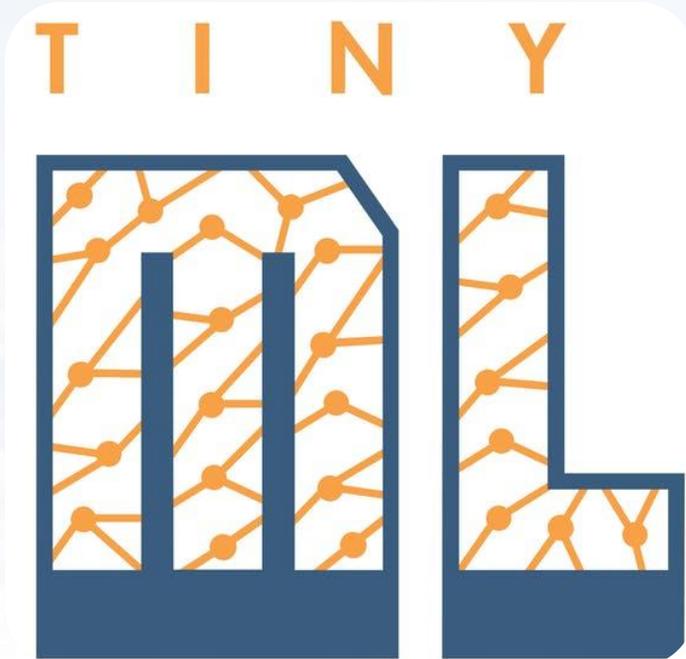


Company Product

-- AI

PART 04

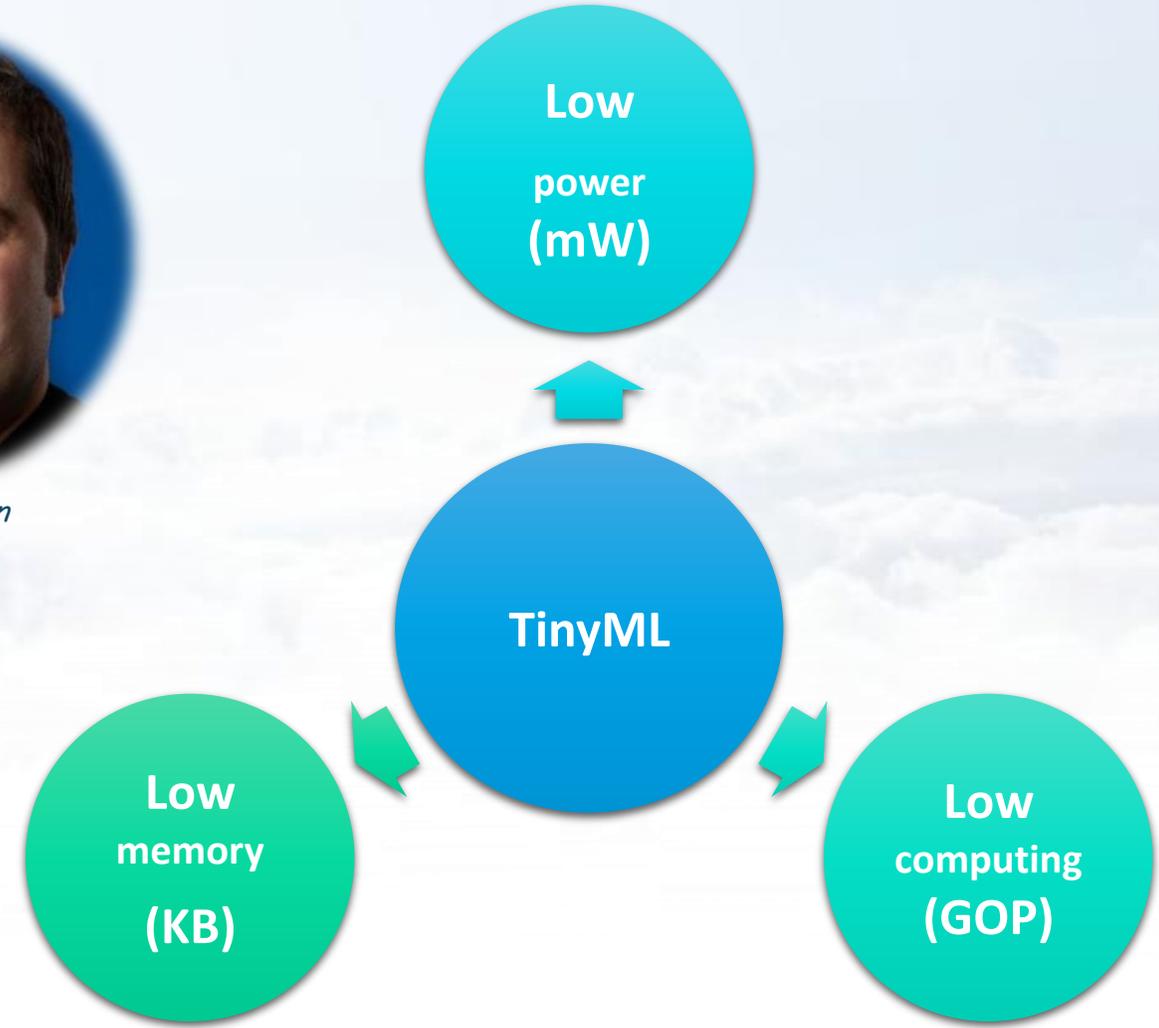


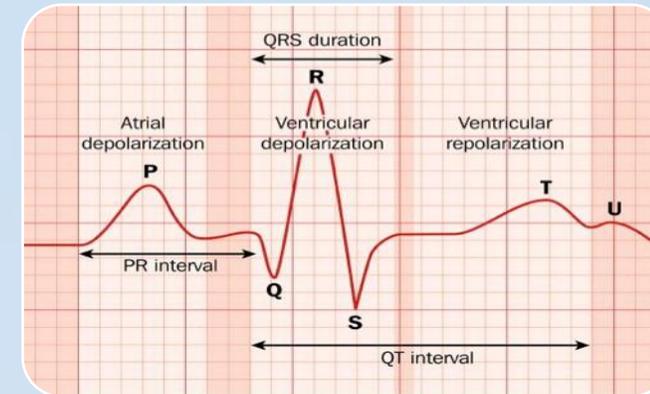
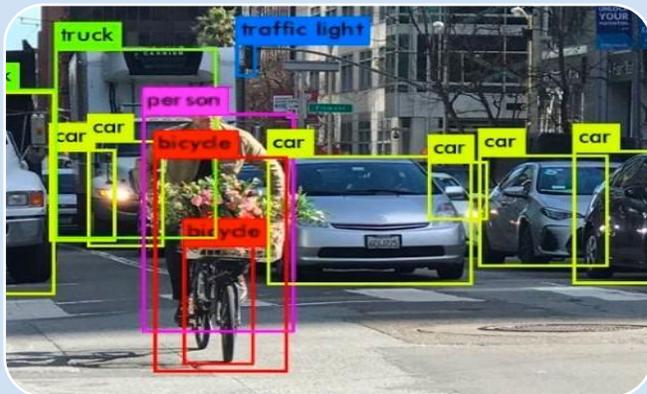


TinyML is the way, tools and technology to implement machine learning on the mW-level power consumer devices.



*Pete Warden*





## ZBIT-IV (Intelligent Vision)

- Visual Wake Words
  - (Model: 300K~500K params)
- Object Classification
  - (Model: 0.5~1M params)
- Object Detection
  - (Model: 0.8~2M params)

## ZBIT-IA (Intelligent Audio)

- Keywords Spotting
  - (Model: 2~4K params)
- Digital Noise Reduction
  - (Model: 0.3~1M params)
- Speaker-ID
  - (Model: 0.5~2M params)

## ZBIT-IT (Intelligent Time-series)

- Time-series Analysis
  - (Model: 300~700K params)
- Anomaly Time-series
  - (Model: 0.8~2M params)



ARM®

**ARM**

- Cortex-M
- Cortex-A
- ... ..



RISC-V

**RISC-V**

- RISC-V
- RISC



MIPS  
TECHNOLOGIES

**MIPS**



DSP

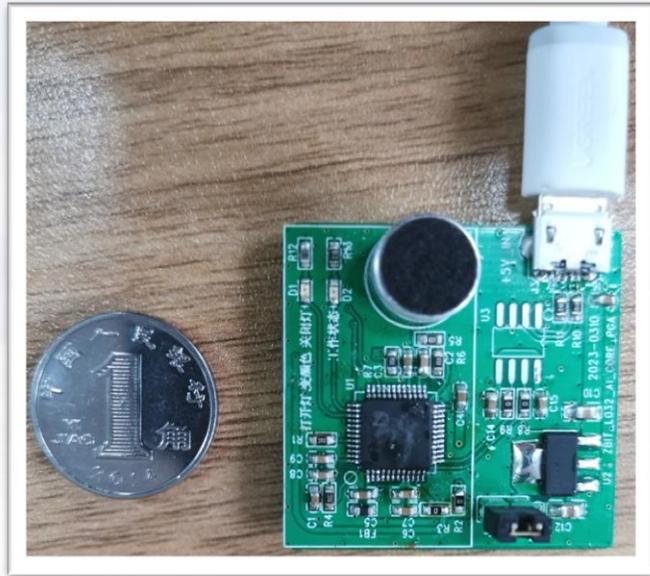
**DSP**

- HiFi
- Synopsys
- ARC



Name	Function	Hardware
KWS	Offline voice wakeup and recognition	M0+ 16KB+ SRAM,64KB+ FLASH, 50MHz+
DNR	Deep Noise reduction	M4 320KB+ SRAM,1MB+ FLASH, 216MHz+
Baby Crying	Baby cry detection	M0+ 16KB+ SRAM,64KB+ FLASH, 50MHz+
Glass Breaking	Glass break detection	M0+ 32KB+ SRAM,256KB+ FLASH, 100MHz+
SPEAK ID	Voiceprint identification	RISC 32KB+ SRAM,256KB+ FLASH, 160MHz+
Fire	Fire detection	M7 1MB+ SRAM,2MB+ FLASH, 480MHz+
Person	Human Shape and face detection and recognition	M4 324KB+ SRAM,2MB+ FLASH, 180MHz+
Vehicle	Vehicle detection and plate recognition	M4 324KB+ SRAM,2MB+ FLASH, 180MHz+
Customized	Video/Audio/Timing	M/A/NPU.....





Name	Function	Hardware
KWS Module	Offline voice wakeup and KWS	M0+ (64MHz, 64KB Flash, 16KB SRAM)
Baby Crying Module	Baby cry detection	M0+ (64MHz, 64KB Flash, 16KB SRAM)
Glass Breaking Module	Glass break detection	M4+ (216MHz, 1MB Flash, 320KB SRAM)
SPEAK ID Module	Voiceprint identification	RISC (160MHz, 256KB Flash, 30KB SRAM)
Smart Fan	BLDC FOC control, Offline voice control	M3 (160MHz, 256KB Flash, 64KB SRAM)



**THANK YOU !**

