waytronic®

Shenzhen Waytronic Electronics Co.,Ltd

waytronic®

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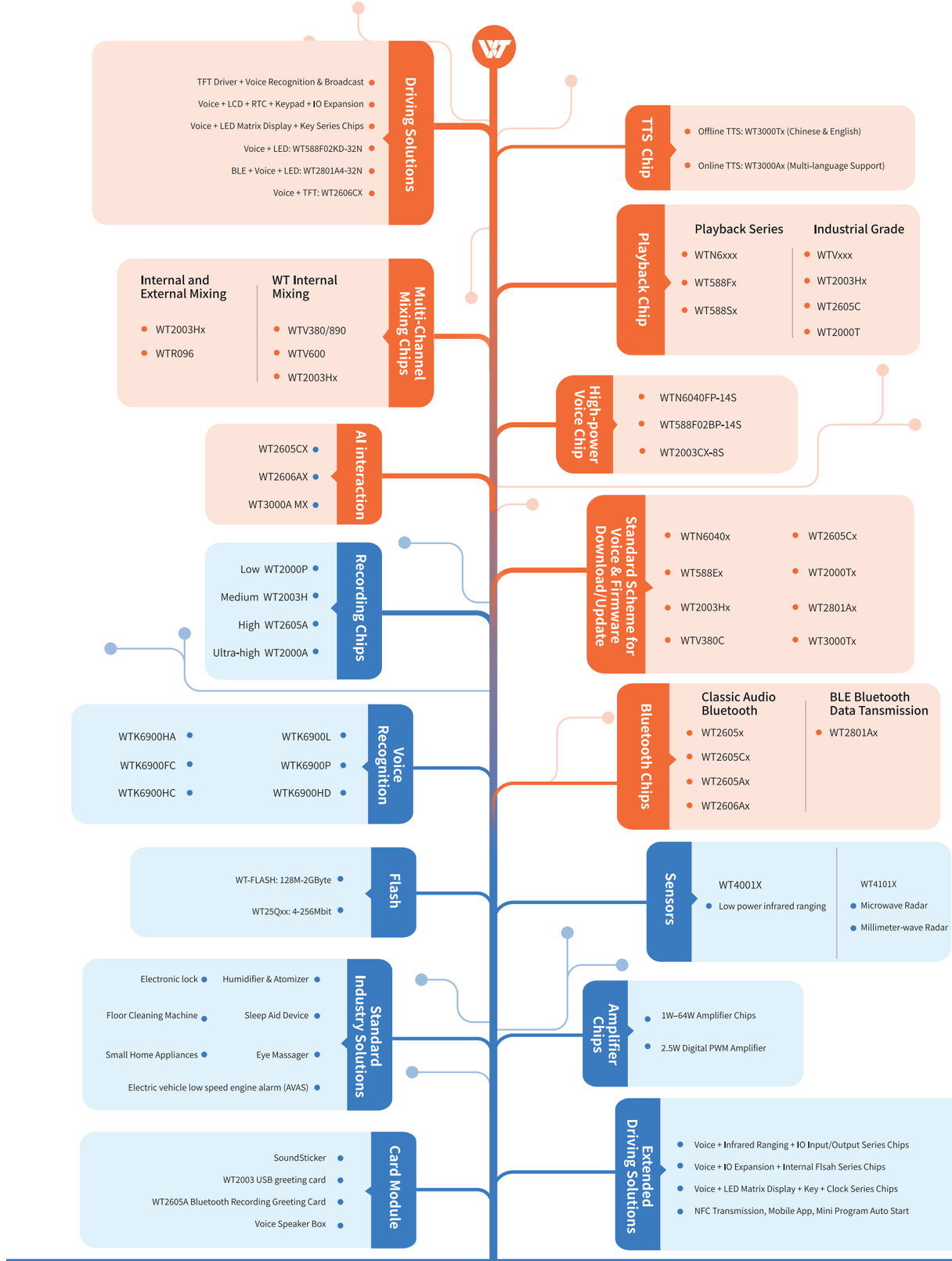


Waytronic Product Family

26+ years
Industry experience

100+ items
Invention patents

90+
R&D personnel

25
Exported to countries

Company Profile

Shenzhen Waytronic Electronics Co., Ltd. (formerly Guangzhou Waytronic Electronics Co., Ltd.) is located in Baoan District, Shenzhen, Guangdong Province. It was founded in Guangzhou in 1999. With over 20 years of development, the company has become a national high-tech enterprise that integrates research and development, production, sales, and service for voice technology research, voice product solution design, and control of software and hardware design. The company has several subsidiaries in Beijing, Guangzhou, Wuhan, Shanghai, and other cities, establishing a nationwide business and service network. It covers various fields, including home appliances, medical equipment, security alarm, automotive electronics, multimedia, communication, telephone recording, industrial automation control, toys, and interactive consumer products. The company's integrated chips and modules mainly include: playback, recording, MP3, Bluetooth WiFi, voice recognition, intelligent voice sensing, and functionality expansion, among others.

Our Vision

To become the most influential company in the field of voice and intelligent Internet of Things.

Our Mission

To to provide a more intelligent interactive experience and make complexity simple, making life better.

Our Values

Creating together, sharing together
Creating the greatest value for our customers,
achieving our employees' dreams.

1999
Company founded in Guangzhou

2001
Started exploring and developing voice chips and speech recognition technology

2002
Focus on research and innovation in the field of voice technology.

2003
Waytronic products gained wide market recognition and praise, thanks to customers' trust; first batch of 600 bus stop announcers delivered to Waytronic

2005
Launched first industry-standard chip — WTV, boosting reputation in the therapeutic instrument industry

2006
Expanded to northern China; Beijing Waytronic Hongtai Technology Co., Ltd. officially established

2008
Released classic product WT588D series and supporting PC software; established Shenzhen branch

2011
Founded Waytronic Smart Platform Division, developing smart home solutions and products

2013
Released MP3 classic product WT2003, widely recognized and praised by the market

2014
Headquarters relocated from Guangzhou to Shenzhen; Shenzhen Waytronic Electronics Co., Ltd. established as parent company, Guangzhou Waytronic became a subsidiary

2017
Certified as National High-tech Enterprise and awarded High-tech Enterprise Certificate

2018
Established Shanghai branch to better serve customers in the Yangtze River Delta

2019
Released new WT588F series chip — smaller size, more powerful functions, enabling 65% replacement applications

2021
Business area doubled, staff size exceeded 200 people

2022
Launched WTVxxx series of cost-effective industrial-grade chips

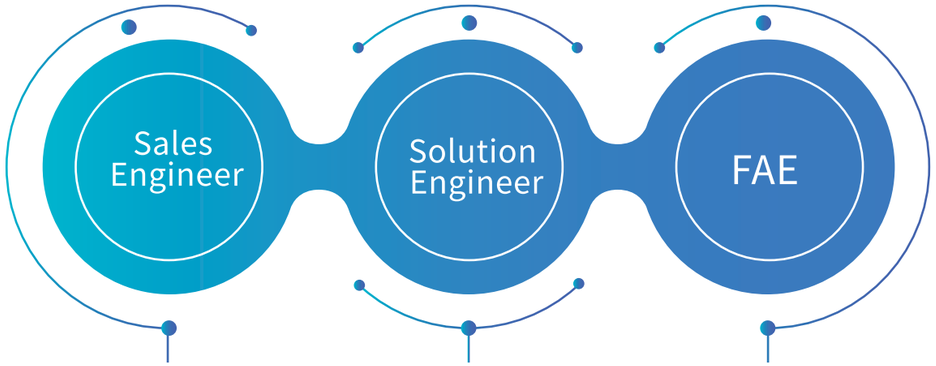
2023
Awarded National Specialized and New "Little Giant" Enterprise; released new WT2000T series and WTR096 speech chip

2024
Released new WT3000Tx chip, WT2801x chip, and online speech recognition chip

2025
Launch of New Products
WT3000A Series AI Voice Interaction Module*
WT26068 TFT Display Driver
WT2606A AI Voice interaction chip
WT4101 Series Radar Module

Service

Only with the creative 'soul' can we go far. Committed to serving more engineers as a strategic goal, Waytronic adheres to the product concept of 'more, fast, good, and cost-effective', continuously innovating and optimizing. In the face of the 'neck-holding' phenomenon in the global semiconductor industry and the impact of the 'chip war' in the IoT industry, as well as various international situations and the current situation, Waytronic always insists on providing engineers with quick voice and intelligent IoT application solutions, shortening product development cycles. With the goal of meeting and exceeding the expectations of customer engineers, we are dedicated to providing high-quality voice solutions and the most optimal BOM to customer engineers.



Understanding specific customer needs and familiar with customer applications.

In-depth understanding of customer application requirements to provide efficient application and high-quality voice solutions, as well as optimal BOM.

Comprised of experienced senior engineers with industry expertise and provide one-on-one/multi-ple-on-one technical support services.

More

Chips can provide customers' products with richer resources and more personalized functions.

Fast

When designing a product, various functional interfaces such as sensor, expandable button and display can be directly accessed, allowing customer engineers to focus more on product feature and experience design. This facilitates a quick implementation of the selection, prototype, and mass production process, thereby shortening the product development cycle.

Good

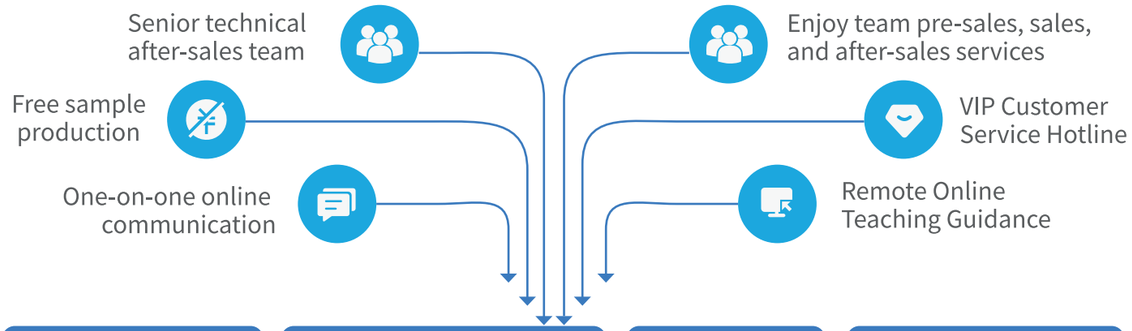
Quality and performance compared to competing products have improved by 30%. A team of three consisting of sales representatives, field application engineers, and product managers are available 24/7 for service. Quick samples can be provided within 24 hours.

Cost

Can partially/full substitute MCU usage, simplifying product's integrated BOM to reduce cost for customers.

Service advantage

Rapidly develop, sample, and deliver according to customer demands



Sample

Quick sampling, free voice production in 1 working day. We can provide dozens of voice tones for customers to create their own samples for free, and also provide burning tools.

Delivery

Timeliness rate reaches 98.83%, with the capability to deliver 500K orders within 5 days. Each delivery has an intelligent scheduling arrangement to strictly monitor the duration of each production process, ensuring quality while also managing customer delivery deadlines.

Customization

Exclusive service team follows up, 1 day for evaluation, 5 days for sample delivery, and 15 days for mass production.

Service

VIP customers receive one-on-one professional customer service with continuous tracking. Exclusive service includes one-on-one online communication and remote online teaching team providing full technical support.

Product advantage

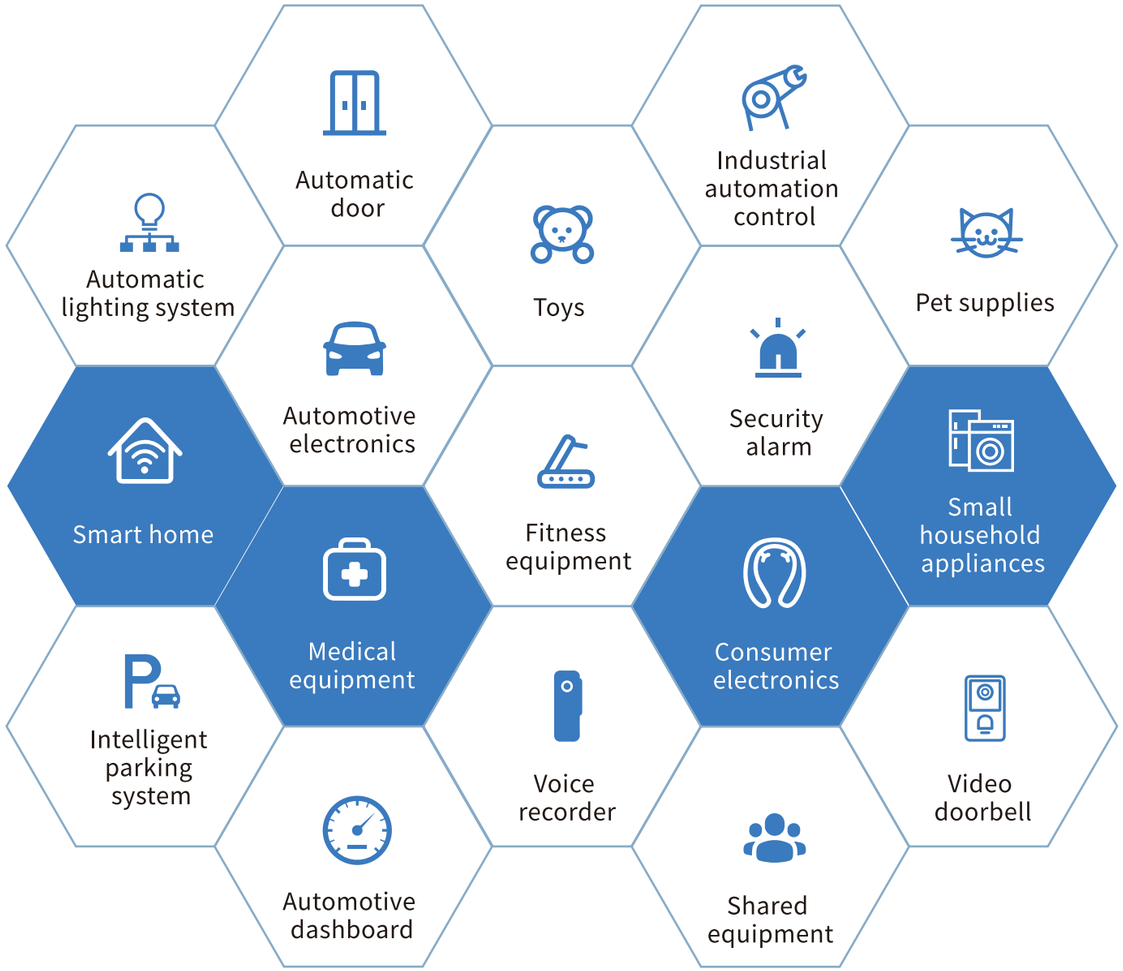
Provide industry-leading products and comprehensive product solutions to address diverse product requirements of our customers.

Stable chip performance	Strong resistance to ESD/EFT interference
Supports multiple application scenarios	Industrial, consumer, and toy grade
Powerful	Supports input and output expansion of IO ports, LED column scan display, button column, and sensor expansion
Develop Simple	Standardize Functions, users only need to make a simple call to create professional products.

Rich product line	Diverse chip types, multiple features, wide range of voice seconds, wide adaptation range
Product lifecycle is long	Chip lifecycle is more than 5-10 years
Seamless Product Replacement	Chip iteration upgrades can be compatible with and replace older chips without requiring any modifications from the customers. It also supports OTA upgrades.
Chip compatible with high	Different voice length and audio quality requirements, capable of supporting direct multi-chip solutions compatible replacement for different series of chips.

Application Area

Shenzhen Waytronic Electronic Co., Ltd. is a high-tech company dedicated to the research of voice technology, the design of voice product solutions, control, software and hardware design. Its business scope mainly involves telephone recording, automotive electronics, multimedia, home security communication, household appliances, medical equipment, industrial automation control, toys and interactive consumer products. It is also an outstanding voice chip manufacturer, engaging in research on voice chips and the development of peripheral circuits. We provide customized and executed voice product development plans for customers with special needs, completing a series of services including product research and development, testing, sound processing, and practical application guidance.



HONORS &PARTNER

Waytronic Partners

GREE, Midea, Vatti, yewell, YADEA, STEELMATE, ANT FINANCIAL, KAADAS, MIJIA, SKG

100+

100+ Copyright & Patent Certificates

Selection Table

Playback Series

Series	Model	Communication interface	Audio Output	Capacity (seconds)	Sampling Rate	Package
WTN6	WTN6XXX-8S	One-line/Two-line	DAC/PWM	6s/20s/40s/80s/170s	6K~32K	SOP8
WT588F	WT588FXXX-8S	One-line/Two-line	DAC/PWM	170s/340s/680s	6K~32K	SOP8
	WT588FXXX-16S	One-line/Two-line / UART	DAC/PWM	1600s~6400s	6K~32K	SOP16
WT588S	WT588SXX-16S	One-line/Two-line	DAC/PWM	4M~128Mbit	6K~32K	SOP16

Playback Class —— Industrial-grade Voice Chip

Series	Model	Communication Interface	Audio Output	Operating Voltage	Capacity (seconds)	Sampling Rate	Package
WTV	WTVXXX-8S	One-line/Two-line UART/IIC	DAC/PWM	2.4-3.6V	380-890	8K~44.1K	SOP8
	WTVXXX-P(QFN)	One-line/Two-line UART/IIC	DAC/PWM	2.4-5.2V	380-890	8K~44.1K	QFN32
WT2003H	WT2003HXX-16S	One-line/Two-line UART	DAC/PWM	2.4-5.2V	380-890	8K~44.1K	SOP16
	WT2003HXX-24SS	One-line/Two-line UART	DAC/PWM	2.4-5.2V	380-890	8K~44.1K	SSOP24
	WT2003HXX-32N	One-line/Two-line UART	DAC/PWM	2.4-5.2V	380-890	8K~44.1K	QFN32
WT2000T	WT2000T-32N	UART/IIC	DAC	2.4-5.5V	380-890	8K~44.1K	QFN32
	WT2000T-52N	UART/IIC	DAC	2.4-5.5V	380-890	8K~44.1K	QFN52
WT2605C	WT2605X-32N/24SS	UART	DAC	2.6-5.5V	/	8K~44.1K	QFN32 SSOP24

High-power Voice Chip

Series	Model	Communication Interface	Audio Output	Capacity (seconds)	Sampling Rate	Package
WTN6 Series	WTN6040FP-14S	1-Wire / 2-Wire	Direct Drive 1\~3W Speaker	40s	6K~32K	SOP14
WT588F Series	WT588F02BP-14S	1-Wire / 2-Wire	Direct Drive 1\~3W Speaker	170s	6K~32K	SOP14

Standard Solution for Voice & Firmware Download/Update

Update Method	Model	Update Interface	Maximum Capacity	Update File Types	Operating Voltage	Audio Synthesis Method
On-board update	WTN6040F-8S	SPI interface	99KByte	bin(voice)	2.2V-5.5V	Host Software Web Version
	WT588F02B-8S	SPI interface	220KByte	bin(voice)	2.4V-5.5V	
	WT2003H Series	UART interface	external 128M Flash	bin (program+voice)	2.4V-5.2V	
	WTV Series	UART interface	976KByte	bin (program+voice)	2.4V-3.6V	
	WT2000T Series	UART interface	external 128M Flash	bin (program+voice)	2.4V-5.5V	
PC replacement	WT2003H4+FLASH	USB interface	external 128M Flash	MP3/WAV	2.4V-5.2V	Customer Audio Source Synthesized via Our Web Platform
	WT2003H4+TF	USB interface	external 32G TFcard	MP3/WAV	2.4V-5.2V	
	WT2605X+TF	USB interface	external 32G TFcard	MP3/WAV	3.0V-5.0V	
	WT2000T Series	UART interface	external 128M Flash	bin (program+voice)	2.4V-5.5V	
U-disk replacement	WT2003H4	UART-Controlled USB Interface	external 128M Flash	MP3	2.4V-5.2V	
	WT2605X	UART-Controlled USB Interface	external 128M Flash	MP3	3.0V-5.0V	
	WT2000T Series	UART interface	external 128M Flash	bin (program+voice)	2.4V-5.5V	
MCU replacement	WT588E02B-8S	SPI interface	220KByte	bin(voice)	2.4V-5.5V	
	WT2003H	UART interface	220KByte	MP3	2.4V-5.2V	
	WT2003H+FLASH	UART interface	external 128M Flash	MP3	2.4V-5.2V	
	WT2605X+FLASH	UART interface	external 128M Flash	MP3	3.0V-5.0V	
	WT2605X+TF	UART interface	external 32G TFcard	MP3	3.0V-5.0V	
	WT2000T Series	UART interface	external 128M Flash	bin (program+voice)	2.4V-5.5V	
	WTVXXX-8S	UART interface	/	bin(voice)	2.4V-3.6V	
Bluetooth replacement	WT2605C	Bluetooth	external 128M Flash	MP3	3.0V-5.0V	

Extend Voice Chip

Series	Model	IO Port	Communication Interface	Audio Output	E²ROM	Key Scan	Capacity (seconds)	Drive	Package
WTV Series	WTVxxx-P	17 IOs, Extended Infrared Distance Measurement, RGB Dimming	IIC/UART	10bit_DAC	16Kbyte	8*4	380-890	LED:8*10	QFN32
WT2003H Series	WT2003HP8-32N	20	UART	16bit_DAC	16Kbyte	8*4	380-890	LED:8*10	QFN32
WT2000T Series	WT2000T-32N	20	UART	24bit_DAC	20Kbyte	8*10	380-890	LCD:4*12	QFN32
	WT2000T-52N	40	UART	24bit_DAC	20Kbyte	8*20	380-890	LCD:4*32	QFN52
WT588F Series	WT588F02KD-24SS	19	UART	16bit_DAC	256bit	8*2	170	LED:8*10	TSSOP24
WT2801 Series	WT2801A4-32N	23	UART	16bit_DAC	20Kbyte	9*12	380	LED:9*12	QFN32
WT2605C	WT2605C-32N	20	UART Key	DAC stereophonic	20Kbyte	8*10	/	LED:8*10	QFN32

TTS Text to Speech Chip

Model	Type	Kernel	Dominant frequency	Storage capacity	DAC	Audio ADC	SPI	PWM	UART	IIC	ADC	IO	INT	working voltage	working temperature
WT3000Tx	FLASH	32bit DSP	240MHZ	8、16Mbit	16 bit DAC SNR≥95dB	16 bit ADC SNR≥90dB	1	4	2	1	10bit	27	12	2.6~5.5V	-40°C~+85°C
WT3000Ax	FLASH	32bit DSP	240MHZ	8 Mbit	16 bit DAC SNR≥95dB	16 bit ADC SNR≥90dB	1	2	2	1	12bit	27	12	2.6~5.5V	-40°C~+85°C

Selection Table

Audio Streaming Codec Chip – Industrial Grade

Series	Model	Communication Interface	Audio Output	Pickup Method	Audio Format	Audio Bitrate
WT2605 Series	WT2605-24SS	UART	DAC	Analog Signal, MIC	PCM\MP3	16K-320Kbps
	WT2605Cx-24SS	UART	DAC	Analog Signal, MIC	PCM\MP3	16K-320Kbps
	WT2605Cx-32N	UART	DAC	Analog Signal, MIC	PCM\MP3	16K-320Kbps
WT2003H Series	WT2003Hxx-16S	One-line/Two-line / UART	DAC/PWM	Analog Signal, MIC	PCM\MP3	8k-160Kbps
	WT2003Hxx-24SS	One-line/Two-line/ UART	DAC/PWM	Analog Signal, MIC	PCM\MP3	8k-160Kbps
	WT2003Hxx-32N	One-line/Two-line / UART	DAC/PWM	Analog Signal, MIC	PCM\MP3	8k-160Kbps
WT2801 Series	WT2801A4-32N	UART	PWM/DAC	Analog Signal, MIC	OPUS\MP3	16K-320kbps
WTV380C	WTV380Cx-8S	UART/SPI/IIC	PWM	/	PCM\MP3	8K-32Kbps

Multi-channel mixing chip

Series	Model	Communication Interface	Audio Output	Storage Method	Mixing Channel	Package
WT Internal Mixing	WTV380\890	UART / One-line/ Serial Two-line Serial / IIC	PWM/DAC	internal memory: 380-890S	2 Channels	SOP8/QFN32
	WTV600	UART / One-line Serial	PWM/DAC	External Flash: 4–128M	16 Channels	SSOP24
	WT2003HX	UART / One-line Serial Two-line Serial	PWM/DAC	Internal Memory: 380–890s External Flash: 4–128M TF Card: 32M–32G	2Channels	SOP16/QFN32
Internal & External Mixing	WT2003HX	UART / 1-Wire Serial Two-line Serial	PWM/DAC	Internal Memory: 380–890s External Flash: 4–128M	1 Internal + 1 External	SOP16/QFN32
	WT2605A	UART	DAC	Built-in Max: 180s External Flash: 128M TF Card / USB Drive: 32G	1 Internal + 1 External	SOP16/SSOP24

Recording Chip

Series	Model	Communication Interface	Audio Output	Audio Quality Parameters	Bit Rate	Storage capacity	Recording Method
WT2000P Series	WT2000P-8S	Button / One-line Serial	DAC/PWM	12bit-ADC	16-64kbps	Built-in: 180s Flash: 4M–128M	Line/MIC
WT2003H Series	WT2003Hx-16S/24SS	UART /One-line Serial / Button	DAC/PWM	16bit-ADC SNR=79dB 16bit-DAC SNR=95dB	8-320kbps	Built-in: Max 360s Flash: 4M–128M TF / USB Drive: 128M–32G	Line/MIC
WT2605A Series	WT2605A4-16S/24SS/32N WT2605A8-16S/24SS/32N	UART / Button	DAC/PWM	16bit-ADC SNR=90dB 16bit-DAC SNR=95dB	8-384kbps	Built-in: Max 360s Flash: 4M–128M TF / USB Drive: 128M–32G	AUX/MIC
WT2000A Series	WT2000A8-40N	UART	DAC/PWM	24bit-ADC SNR=95dB 24bit-DAC SNR=105dB	8-384kbps	Built-in: Max 90s Flash: 4M–128M TF / USB Drive: 128M–32G	AUX/MIC

Bluetooth Chip

Series	Model	Built in storage	Audio Output	Bluetooth Function	Operating Voltage	Package
WT2605 Series	WT2605A-24SS	4Mbit	DAC	Bluetooth 5.1BR/EDR&BLE	2.6V-5.5V	SSOP24
	WT2605C-32N	C4:4Mbit C8:8Mbit	DAC Stereo	Bluetooth 5.1 BR/EDR/BLE	2.6V-5.5V	QFN32
	WT2605-24SS	4Mbit	DAC Stereo	Bluetooth 5.1 BR/EDR	2.6V-5.5V	SSOP24
WT2606A Series	WT2606Ax-40N	A8:8Mbit A6:16Mbit	24bit DAC Stereo	Bluetooth 5.2BR/EDR&BLE	2.6V-5.5V	QFN40
WT2801 Series	WT2801A-16S	4Mbit	DAC Mono	Bluetooth 5.3 BLE	2.6V-5.5V	SOP16
	WT2801A-32N	4Mbit	DAC Mono	Bluetooth 5.3 BLE	2.6V-5.5V	QFN32

Voice Recognition Chip

Model	Features	Recognition Languages	Recognition Accuracy	Number of Commands	Recognition Distance	Power Consumption	Capacity	Package
WT2606A	Strong Noise Immunity / Requires Crystal / OTA Upgrade / Supports UART Communication / Supports Audio Feedback & Interrupt	Chinese English	98%	Wake Words: 10 Command Words: 300	3-5M	30-40mA	16M 32M 128M	QFN40
WTK6900FC	Strong Noise Immunity / No Crystal Needed / OTA Upgrade / Supports UART Communication / Supports 10 IO Customization	Chinese English Japanese Korean	98%	Wake Words: 10 Self-Learning Wake Words: 1 Command Words: 300 Self-Learning Command Words: 19	5-8M	50-60mA	32M 64M	SS0P24
WTK6900HC	Strong Noise Immunity / No Crystal Needed / OTA Upgrade / Supports UART Communication / Supports IO Customization	Chinese English	98%	Wake Words: 10 Command Words: 300	5-8M	25-30mA	8M 16M 32M	S0P16 SS0P24 QFN32
WTK6900HA	Medium Noise Immunity / No Crystal Needed / OTA Upgrade / Supports UART Communication / Supports 10 IO Customization	Chinese English	95%	Wake Words:10 Command Words: 300	3-5M	15-20mA	4M 8M 16M	S0P16 SS0P24 QFN32
WTK6900L	Low Noise Immunity / No Crystal Needed / Supports UART Communication / Supports IO Customization	Chinese	90%	Command Words: 50	0.5-3M	20-25mA	2M 4M 8M	SOP8
WTK6900P	Low Noise Immunity / No Crystal Needed / Supports UART Communication / Supports 10 IO Customization	Chinese English	85%	Command Words: 20	0.5-3M	5-10mA	4M	ESOP8 SOP16

Flash

Series	Model	Capacity (bit)	Operating Voltage	Power Consumption	Package	Operating Temperature
WT25QXX Series	WT25Q16X-8S	16M	2.4~3.6V	<1ua	SOP8 (150mil)	-40~85°
	WT25Q32X-8S	32M	2.4~3.6V	<1ua	SOP8 (150mil)	-40~85°
	WT25Q64X-8S	64M	2.4~3.6V	<1ua	SOP8 (208mil)	-40~85°
	WT25Q128X-8S	128M	2.4~3.6V	<1ua	SOP8 (208mil)	-40~85°

Selection Table

Amplifier Chip

Parameters	WT8509	WT9110B	WT8623	WT8673
Type	AB/D	D	D	D
Channels	Mono	Mono	Mono	DAC/PWM
Input Audio Type	DAC/PWM	DAC/PWM	DAC/PWM	DAC/PWM
Input Method	Single-Ended / Differential	Single-Ended / Differential	Single-Ended / Differential	Single-Ended / Differential
Package	ESOP8 (Bottom Heat Sink Must Be Grounded)	ESOP8 ((Bottom Heat Sink Must Be Grounded)	ESOP16 (Bottom Heat Sink Must Be Grounded)	ESOP16 (Bottom Heat Sink Must Be Grounded)
Recommended Supply Voltage	2.5-8.5V	6-14.5V	6-16V	6-21V
Max Output Power	8.5V 4R 8.5W	14.5V 4R 28W	16V 4R 32W	21V 4R 64W
Speaker Configuration	4R 8.5W	4R 28W	4R 32W	4R 64W
Amplifier On/Off Control	High-On Low-Off	High-On Low-Off	High-On Low-Off	High-On Low-Off
Quiescent Current	≦4.6mA	When it' s 9V ≦17mA Typical≦10mA	≦15mA Typical≦10mA	≦15mA Typical≦10mA
Shutdown Current	≦0.1uA	/	≦50uA	≦50uA
ESD Voltage (HBM)	±4000	±2000	±2000	±2000
ESD Voltage (MM)	±400	±300	±200	±200

Parameters	WT1312	WT4890	WT8002	WT8302	WT8871
Type	PWM	AB	AB	D	AB/D
Channels	Mono	Mono	Mono	Mono	Mono
Input Audio Type	PWM	DAC/PWM	DAC	DAC/PWM	DAC
Input Method	Differential	Single-ended/differential	Differential	Single-ended/differential	Differential
Package	SOT23-6	MSOP8	SOP8	SOP8/MSOP8	ESOP8 (Grounding of bottom heat dissipation required)
Recommended Supply Voltage	2-5V	2.2-5V	2.2-5V	2.5-5V	2-5V
Max Output Power	5V 4R 2.3W	5V 8R 1W	5V 4R 2.4W	5V 4R 2.9W	5V 2R 5W/5V 4R 3W
Speake Configuration	4R 2.3W	8R 1W	4R 2.4W	4R 2.9W	2R 5W/4R 3W
Amplifier On/Off Control	/	High-On Low-Off	Low-On High-Off	High-On Low-Off	Low-On High-Off
Quiescent Current	≦150uA Typical≦100uA	≦10mA Typical≦5mA	≦10mA	≦4mA	≦10mA Typical≦6mA
Shutdown Current	≦3uA Typical≦1uA	≦2uA Typical≦0.1uA	≦1uA	≦0.1uA	≦2uA Typical≦0.8uA
ESD Voltage (HBM)	±2000	Discharge of 100pF through 1.5kΩ resistor	2000	±4000	3000
ESD Voltage (MM)	±200	Discharge of 200–240 pF through 0Ω resistor	200	±400	250

Sensor

Model	Type	Communication Interface	Power Consumption	Distance	Operating Voltage	Package
WT4001A	Infrared Sensor	IO/UART	Around 16μA	10CM-100CM	DC3.0V~5V	SOP8/Module
WT4101A-C01	Microwave Sensor	IO	Around 430μA	1-2M	DC2.8V~3.5V	Module
WT4101A-C04	Microwave Sensor	IO	Around 880μA	1-13M	DC4V~12V	Module
WT4101A-C04L	Microwave Sensor	IO	Around 42μA	1-8M	DC4V~12V	Module
WT4102A	Millimeter-Wave Sensor	IO/UART	Minimum 12μA	0.3-8M	DC4.0-12V	Module
WT4103A	Millimeter-Wave Sensor	IO/UART	125MA	1-6M	DC5V-28V	Module

TFT Display Driving Solution

Series	Model	Control Method	Driving Resolution	Update Method	Interface	Package
TFT display driver	WT2003B	UART/IIC/SPI	480*320/15fps	UART/TF Card	QSPI/SPI	SOP16/QFN32
	WT2606B	UART/IIC/SPI	520*420/30fps	UART/Bluetooth	QSPI/SPI	QFN40
	WT2606CX	UART/IIC/SPI	480*480/30fps	UART/Bluetooth	QSPI/SPI	QFN40
	WT6001A	UART/IIC/SPI	600*800/30fps	UART/TF Card	QSPI/RGB	QFN64

Display Driving Solution

Series	Model	Control Method	Maximum Driving Points	Segments	Voice Capacity	Package
Bluetooth+LED	WT2801A4	UART	96	12*8	100s	QFN32
Voice+LED	WTV xxx	UART	100	10*10	380-890s	QFN32
	WT588F02KD	UART	128	8*16	170s	QFN32

New Product – WT2801 Series Chip

Chip Model	Communication interface	DAC	PWM	ADC	Sampling Rate	Audio Format	Audio Sampling	Package
WT2801A4-16S	UART	16bit,SNR 90dB	16bit Class-D,SNR 98dB	16bit,SNR 91dB	8~48kHz	MP3\WAV	Decoding: Sampling Rate 8~96 kHz	SOP16
WT2801A4-32N	UART	16bit,SNR 90dB	16bit Class-D,SNR 98dB	16bit,SNR 91dB	8~48kHz	MP3\WAV	Decoding: Sampling Rate 8~96 kHz	QFN32

Standard Voice Playback: Specified playback, combined playback, loop playback, volume adjustment, DAC/PWM, sleep, wake-up, low power, file management
BIN File Reading: Read the current voice content and configuration files of the chip via serial port
Supports Voice Update: Automatically update voice content via BLE, including BIN files and voice files download

1、BLE Transparent Transmission, operating at 2.4GHz ISM band, GFSK modulation (Gaussian Frequency Shift Keying), simple to use, no Bluetooth protocol stack experience required

2、User interface uses general-purpose serial design, full-duplex bidirectional communication, minimum baud rate supported: 4800bps–921600bps

3、Default 20ms connection interval, fast connection, good compatibility with Android and iOS

4、Supports obtaining MAC address, and modifying MAC address via command (effective after reset)

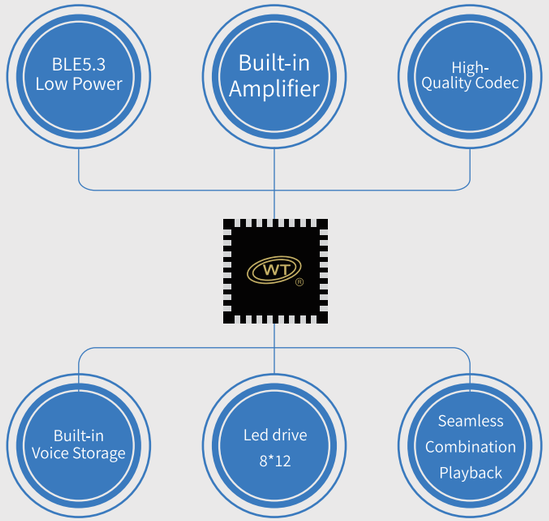
5、Supports adjusting Bluetooth connection interval via command to control different forwarding rates (dynamic power adjustment)

6、Supports adjusting transmission power, modifying advertising interval, customizing device ID, changing serial port baud rate, changing Bluetooth name via command

7、Supports local voice decoding; chip can store some fixed voices internally

8、Supports external SPI Flash peripherals

9、Supports audio decoding formats such as MP3 and WAV



New Product – WT2606BX Series Chips

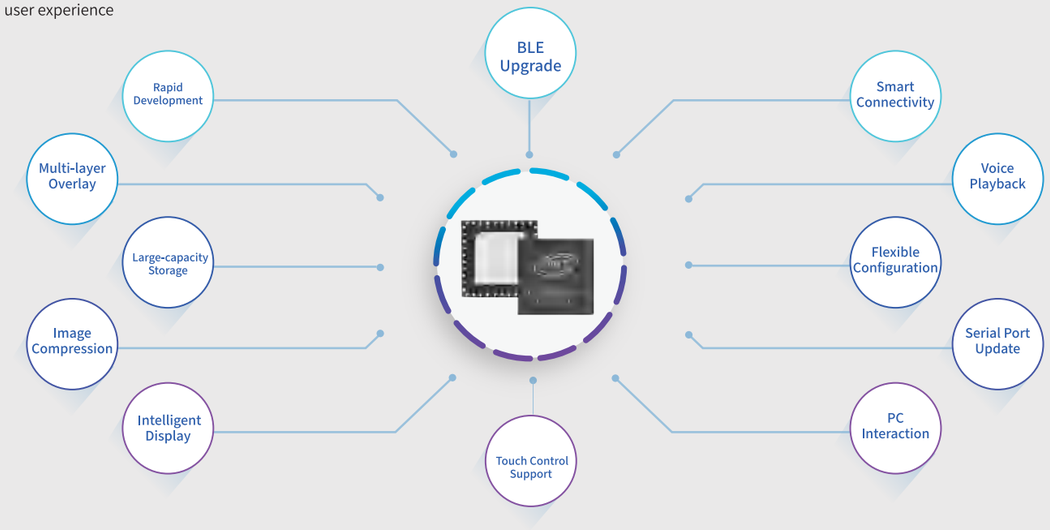
Chip Model	Type	Core	Main Frequency	Storage Capacity	DAC	ADC	SPI	PWM	UART	IIC	ADC	IO	INT	Operating Voltage
WT2606BX-QFN40	FLASH	32bit DSP	240MHZ	0、64、128Mbit	16-bit DAC SNR≥95dB	16-bit ADC SNR≥90dB	1	6	2	1	10bit	27	12	2.8~4.5V

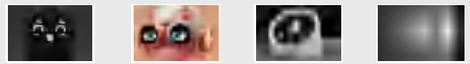
Application Advantages: Empower Products in All Aspects

1、Easy Control: Simple commands to display images and videos
2、High Compression: Video up to 1:5 compression ratio, saving storage space
3、Multiple Modes: Supports more than 5 image switching modes
4、Multi-Dimensional Interaction: Voice, image, and video output simultaneously for rich, immersive interaction
5、Flexible Content Update: Serial interface allows easy replacement of images, voice, and video
6、Future-Proof: Supports Bluetooth update, BLE transparent transmission, and serial transparent transmission expansion

Core Advantages: Leading Technology, Enabling Innovation

1、Rapid Development: Designed for high-end appliances, highly integrated, significantly shortens development cycle, seizing market opportunities
2、Outstanding Functionality: Fills market gaps, meets high-performance and multifunction display chip needs, enabling product differentiation
3、Ultra-Smooth: 60fps refresh rate, no stutter or ghosting, delivering clear and realistic visuals, enhancing user experience
4、Broad Compatibility: Supports SPI/QSPI protocols, compatible with 0.96–3.5inch displays, expanding application scenarios
5、Smart Display, Enhanced Interaction: Serial commands easily display images/emojis; strong overlay function creates rich, vivid visual effects
6、Convenient Updates: Offline serial updates for program/UI files, simple operation, reduces maintenance costs
7、Flexible Configuration: Adjustable serial baud rate ensures stable and efficient data transmission
8、Resource Optimization: Built-in dual serial ports save MCU communication resources, simplify system design, improve multitasking efficiency
9、Smart Connectivity: Commands generate QR codes for device binding display, improving user experience




Smart Lock | Smart Toys | Medical Equipment | Home Appliances

New Product – WT2605A Series Chip

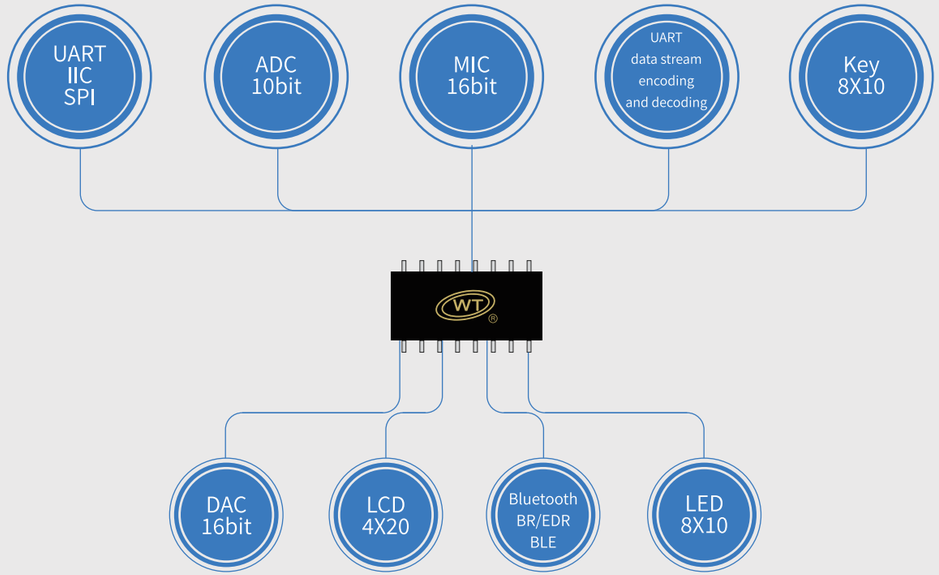
Chip Model	Communication Interface	ADC	Audio Sampling Rate	Operating Voltage	Operating Temperature	Main Frequency	Bluetooth Function	Audio Format	Package
WT2605A-24SS	UART	16bit, SNR>=90dB	8~44.1kHz	2.8V-5.5V	-40°C~+85°C	160MHZ	Bluetooth 5.3 BR/EDR&BLE	MP3/WAV	QSOP24
WT2605A-QFN32	UART	16bit, SNR>=90dB	8~44.1kHz	2.8V-5.5V	-40°C~+85°C	240MHZ	Bluetooth 5.3 BR/EDR&BLE	MP3/WAV	QFN32

WT2605A-QFN32

This chip is mainly used for short-range Bluetooth music transmission, easily connecting with laptops, smartphones, tablets, and other digital devices for wireless music transfer and recording.

WT2605A-24SS

WT2605A is an AI noise reduction chip, featuring low cost, high reliability, and strong versatility. Based on advanced neural network architecture, it effectively removes both steady and non-steady noise in signals. Using deep neural network nonlinear modeling, it maintains better signal quality under high noise suppression ratios.
Complex Noise Handling: Capable of processing complex non-steady noises, especially wind noise.



Automotive dashboards

Smart home appliances

Fitness equipment

Shared devices

Eye massagers

Early learning machines

AI

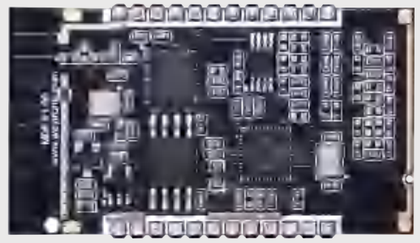
WT3000A Series

Explore a New Future of Voice Interaction

01 New AI Conversation Product

WT3000A Series Wireless Voice Module

A New Choice for Intelligent Voice Interaction
With 26 years of experience in the voice chip industry, Shenzhen Waytronic Electronics Co., Ltd. launches the WT3000A Series Wireless Voice Module, offering cutting-edge voice interaction solutions for various industries.



Efficiently Empowering AI Edge Capabilities Across Industries

Breaking traditional business boundaries, empowering through AI at the edge, injecting strong momentum into industrial upgrades, laying a solid foundation for cross-domain product integration and innovative applications, and greatly enhancing core product competitiveness.

Powerful Performance, Enabling Efficient Interaction

The module integrates a self-developed AI audio processing core and streaming transmission technology, achieving millisecond-level voice interaction response.
It combines Wi-Fi, voice chip, storage, and amplifier in one unit, offering low latency, high reliability, and fast response.
Supports key and voice wake-up, with a wake-up distance of 1–3m and customizable wake words.
Features AEC echo cancellation and human voice gain noise reduction, and supports playback interruption.
Locally stores 200 voice control commands, with unlimited commands online.
Uses BLE configuration and 2.4GHz Wi-Fi, employing dual protocols MQTT and WebSocket for precise command and audio transmission.
The module supports integration with major domestic and international AI assistant platforms such as iFLYTEK and Koozy, featuring low latency and rapid response.

Wide Applications, Integrated into Diverse Scenarios

In the smart toy field, it enables natural conversations with children, combining education and entertainment.
For smart home and security, it allows voice queries for weather and device control, enhancing daily convenience.
As a smart voice assistant, it supports recognition of 51 languages, easily handling various tasks.
In healthcare scenarios, it can interpret data from devices like blood pressure monitors and provide health reminders.
Integrated into kitchen appliances such as electric ovens, it enables voice operation and recipe narration, making cooking more convenient.

Rapid Deployment of Immersive Voice Interaction Scenarios

Commands
200+ Local Recognized Keywords / Custom UART Commands

Transmission
Wi-Fi / 2.4GHz Streaming Audio Transmission

Playback
Supports Local + Streaming, Multi-Format Decoding & Playback

Wake-Up
Custom Local Voice Wake-Up

Noise Reduction
AEC Echo Cancellation & Human Voice Gain

Interrupt
Playback Interruption Support to Enhance Interaction Experience

02 New Product Online TTS

In today's era where globalization and intelligent technology converge, the ability of devices to interact in multiple languages has become increasingly essential. Shenzhen Waytronic Electronics Co., Ltd. has meticulously developed the WT3000A series wireless voice modules, which, with their advanced technology, break down language barriers and deliver a convenient, efficient smart voice interaction experience for users worldwide.

An out-of-the-box online module/set designed for developers to quickly integrate and deploy.

The online voice module can integrate Wi-Fi, 4G, BLE, voice chip, and local storage into a single unit. It supports online TTS synthesis with streaming playback and downloading, local audio decoding and playback, as well as functions such as playback interruption, switching, pausing, and volume adjustment.

Ultra-humanlike voice synthesis with sound characteristics remarkably close to real human speech (AITTS engine).

Powered by next-generation large model capabilities, it supports 16 languages and 6 Chinese dialects. The model can intelligently predict emotions, intonation, and other contextual information from text. Compared with traditional speech synthesis technology, the large voice model delivers a more vivid and emotionally expressive listening experience, offering customers greater realism and richer emotional performance.

WiFi 2.4G

BLE 5.3

- Voice chip
- SPI FLASH
- Amplifier

Input Text

Welcome to experience Waytronic Electronics' online voice synthesis. We provide ultra-human-like voices and hope you will enjoy them.

音色选择

16 Languages

Chinese, English, Chinese-English Mixed, French, Thai, Italian, Korean, Japanese, Indonesian, German, Spanish, Russian, Vietnamese, Malay, Filipino

7 Chinese Dialects

Cantonese, Northeastern Dialect, Tianjin Dialect, Taiwanese, Sichuan Dialect, Hunan Dialect

Audio Formats

MP3 WAV PCM

Parameter Adjustment

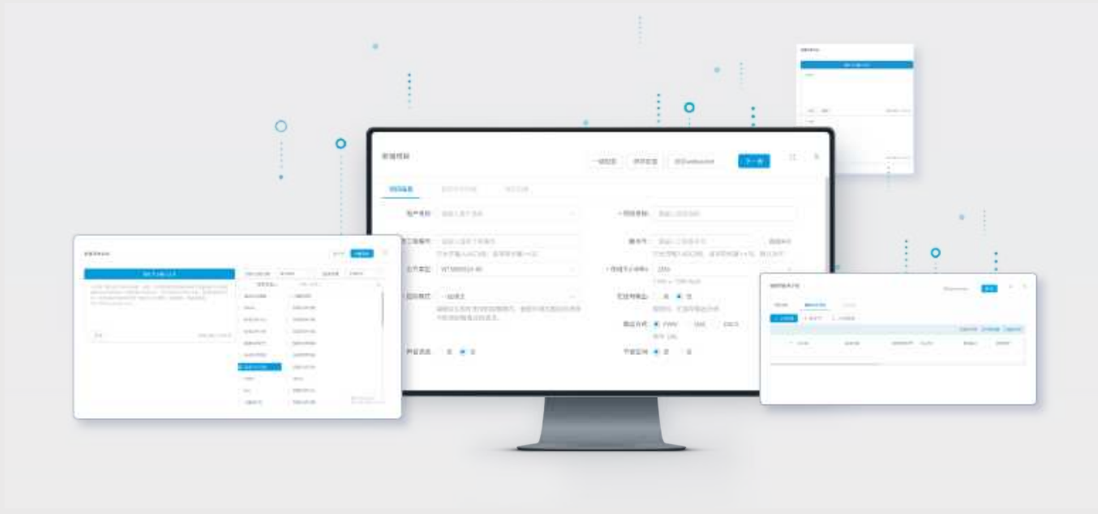
volume

Pitch

Speed

Equipped with Complete Secondary Development Tools for Smooth Integration

Provides PC serial debugging tools for easy MCU communication debugging. Comes with APP SDK supporting Bluetooth provisioning, TTS synthesis, audio upload, Bluetooth updates, and more, enabling rapid integration with third-party platforms.

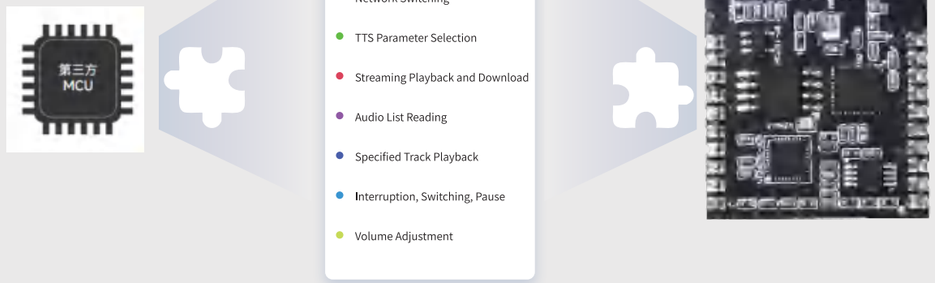


Rich Open Functional Interfaces for Convenient Development

Leveraging cloud capabilities, online TTS overcomes local storage limitations, allowing real-time language library updates to keep up with language changes. Developers can use open UART communication interfaces and supporting tools to easily develop features, perform network switching, select TTS parameters, and quickly complete product integration.

Professional Services to Support Product Deployment

Waytronic Electronics offers end-to-end pre-sales and after-sales services, from requirement communication and solution design to development, testing, and maintenance. With a professional team, it has delivered over 10,000 custom solutions across 80+ industry segments, earning recognition from 10,000+ clients and collaborating with numerous brands.



New Product – WT2606A Series Chip

Chip Model	Communication interface	Audio output	Bluetooth function	Storage capacity	Core	Main Frequency	DAC	Audio ADC	URAT	Operating Temperature	Operating Voltage	Package
WT2606A8-40N	UART	24bit DAC Stereo	Bluetooth5.3 BR/EDR&BLE	16M bit	32bit Dual-coreDSP	160MHz	24-bit SNR⩾104 dB	24-bit SRN⩾95 dB	2	-40~+85℃	2.6~5.5V	QFN40

The WT2606A Series is a high-performance industrial-grade dual-mode Bluetooth chip, compliant with Bluetooth V5.3 + BR + EDR + BLE standards. It supports AI noise reduction and far-field voice pickup. The Bluetooth function integrates both master and slave modes, enabling both sending and receiving capabilities. It is widely used in smart home devices, automotive dashboards, national standard electric vehicle dashboards, smart medical electronics, printers, recording devices, and more.

Chip Resources

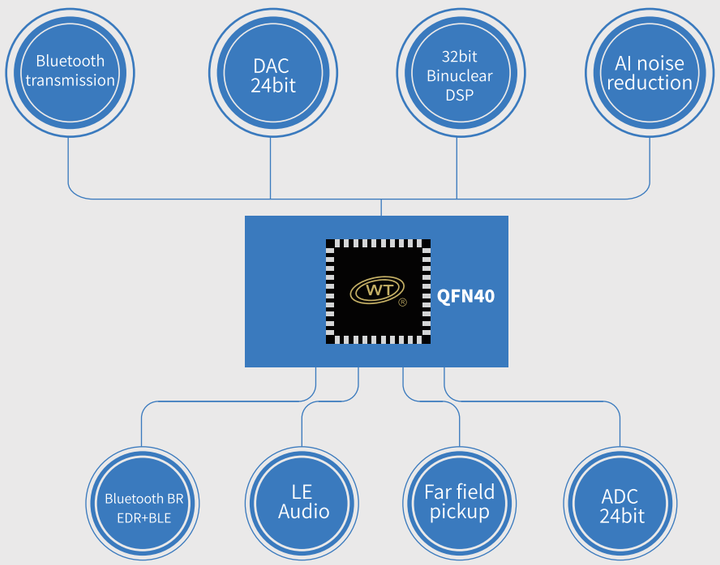
1、Highly integrated 32-bit dual-core DSP, 160MHz main frequency, supporting hardware acceleration engines
2、Dual-channel 24-bit DAC, SNR ⩾ 104dB
3、Four-channel 24-bit ADC, SNR ⩾ 95dB
4、Built-in 16Mbit Flash for storing audio and user data
5、Supports common peripherals including PWM, SPI, UART, I²C, with up to 21 IO ports

Bluetooth Features

1、Compliant with Bluetooth V5.3 + BR + EDR + BLE standards
2、Supports AoA/AoD direction finding
3、Supports full LE Audio BIS/CIS functionality
4、Meets Class 2 and Class 3 transmission power requirements
5、Maximum +9☒dBm transmission power
6、Minimum receive sensitivity -95☒dBm
7、Supports protocols: A2DP, AVCTP, AVDTP, AVRCP, HFP, SPP, SMP, ATT, GAP, GATT, RFCOMM/SDP, I²CAP

Noise Reduction Features

1、Supports dual-microphone far-field pickup, up to 5 meters
2、Supports AI Noise Reduction:
3、Complex Noise Handling: Effectively processes complex non-steady noises, especially wind noise
4、Steady Noise Performance: Performs well on steady noise, comparable to traditional ENC methods
5、Adaptive and Extensible: Special processing for various sounds and noises, offering strong adaptability and scalability



Hot New Product – Offline & Online VoiceRecognition, Online TTS Streaming Playback and Download Chip

Model	Type	Core	Main Frequency	Storage Capacity	DAC	Audio ADC	UART	Operating Voltage	Operating Temperature
WT2605Cx chip	FLASH	32bit DSP	240MHZ	8 Mbit	16 bit DAC SNR⩾95dB	16 bit ADC SNR⩾90dB	2	2.6~5.5V	-40℃~+85℃
WT3000Ax module	FLASH	32bit DSP	240MHZ	32 Mbit	16 bit DAC SNR⩾95dB	16 bit ADC SNR⩾90dB	2	2.6~5.5V	-40℃~+85℃

Multiple Core Technologies

This solution includes:
Offline Wake-Up Recognition, AGC, ANC Noise Reduction, Online Voice Recognition, Online TTS, NLP Natural Language Processing, Streaming Playback, Real-Time Download Technology. The technologies can be used independently or in combination, selectable as needed.

Solution Advantages
Unlike offline solutions, online recognition and online TTS are not limited by language, voice type, or number of entries. This solution features fast wake-up, high accuracy, global mainstream language recognition, ultra-human TTS, real-time streaming playback, and rapid download. The solution provides modular SDK and API components, allowing engineers to call online services via serial tools, quickly switch recognition and TTS parameters, significantly shorten product development cycles, improve efficiency, reduce costs, and support growth.

Online Voice Recognition
Supports 51 languages and 23 domestic dialects with rapid switching

1、Supported input format: Mono 16-bit audio, including uncompressed PCM, WAV, OPUS, AMR, SPEEX, MP3, AAC
2、Audio sampling rates: 8000Hz, 16000Hz
3、Duration limit: Voice data must not exceed 60 seconds

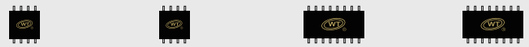
Online TTS Voice Synthesis
High-quality audio synthesis for 16 languages and 7 domestic dialects

1、Supports output formats PCM, WAV, and MP3
2、Supports speed, pitch, and volume adjustment
3、Supports different voice styles and scenarios
4、Supports one-time synthesis of up to 300 characters (each Chinese character, English letter, punctuation mark, or space counts as one character; content exceeding 300 characters will be truncated)
5、Supports only UTF-8 encoded text input

Playback Series

Stores the audio to be played in the voice chip, and the MCU controls playback via IO commands. Currently, there are two series: WTN6 and WT588F. The WTN6 series is OTP; once the audio is programmed, it cannot be changed. The WT588F series is Flash-based; after programming the audio files, they can be erased and reprogrammed. (Audio files can be created using our web tool for storage in the voice chip.) WTN6 currently supports 6s, 20s, 40s, and 80s durations. WT588F series supports 170s, 340s, and 680s. External Flash (4M–128Mbit) can also be added to store more audio files.

1:1 Chip Package Diagram



WTN6XX-8S
4.9*6mm

WT588FXX-8S
4.9*6mm

WT588FXX-16S
9.9*6mm

WT588SXX-16S
9.9*6mm

Chip Specifications

Series	Model	Communication Interface	Audio Output	Capacity (seconds)	Sampling Rate	Package
WTN6 Series	WTN6xxx-8S	One-line/Two-line	DAC/PWM	6s/20s/40s/80s/170s	6K~32K	SOP8
WT588F Series	WT588Fxxx-8S	One-line/Two-line	DAC/PWM	170s/340s/680s	6K~32K	SOP8
	WT588Fxxx-16S	One-line/Two-line/UART	DAC/PWM	1600s~6400s	6K~32K	SOP16
WT588S Series	WT588Sxx-16S	One-line/Two-line	DAC/PWM	4M~128Mbit	6K~32K	SOP16

Features

WTN6 Series

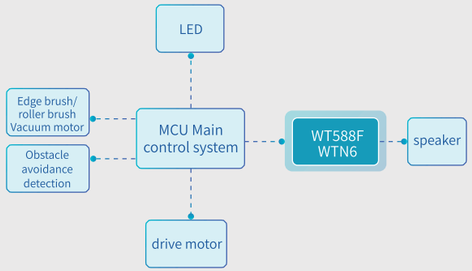
- Operating Voltage: 2.4V–5.5V
- Standby Current: <5μA
- Supports up to 224 voice addresses
- 12-bit PWM, directly drives 8Ω/0.5W speaker; DAC audio output, external amplifier supported
- Control Modes: Pulse, Button, 1-Wire, 2-Wire Serial
- Voice Capacity: 6s, 20s, 40s, 80s, 170s

WT588F Series

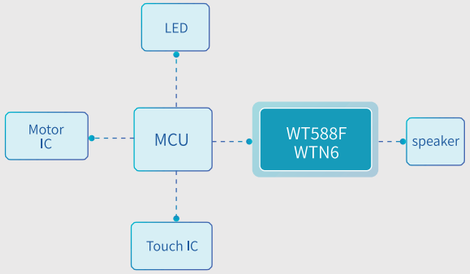
- Operating Voltage: 2.4–5.5V; Standby Current: <5μA
- 16-bit PWM/DAC output, can directly drive 8Ω/0.5W speaker
- Users can replace internal audio content via MCU or supporting downloader
- Supports 1-Wire and 2-Wire Serial (UART and I²C communication)
- Supports 5000 voice addresses
- Equipped with hardware SPI, UART, built-in comparator, and customizable interfaces for client-specific functions

Application Schemes

Floor Cleaning Robot Application Diagram



Electronic Lock Application Diagram



Typical Application

Electronic Locks | Floor Cleaning Robots | Blood Pressure Monitors | Doorbells | Massage Guns | Humidifiers

Playback Class —Industrial-grade Voice Chip

Industrial-Grade Voice Chips

Stores audio in the voice chip or external storage, and the MCU controls playback via IO commands, IIC, UART, or AT communication. Currently, there are three series: WTV, WT2003H, and WT2605. WTV and WT2003H series are Flash-based, supporting on-board voice updates (audio .bin files can be created using our web tool). WTV series supports 380s and 890s . WT2003H series supports 350s and 900s durations, and can also use external Flash/TF card/USB, supporting on-board serial and USB updates.

1:1 Chip Package Diagram

WTVXXX-SOP8 4.9*6mm | WT2003HXX-16S 9.9*6mm | WT2003HXX-24SS 8.65*6mm | WTVXXX-P(QFN) 4*4mm | WT2003HXX-32N(QFN) 4*4mm | WT2605X-32N(QFN) 4*4mm

Chip Specifications

Series	Model	Communication Interface	Audio Output	Operating Voltage	Capacity (seconds)	Sampling Rate	Package
WTV Series	WTVxxx-8S	1-Wire / 2-Wire/UART/IIC	DAC/PWM	2.4-3.6V	380-890	8K~44.1K	SOP8
	WTVxxx-P(QFN)	1-Wire / 2-Wire/UART/IIC	DAC/PWM	2.4-5.2V	380-890	8K~44.1K	QFN32
WT2003H Series	WT2003Hxx-16S	1-Wire / 2-Wire/UART	DAC/PWM	2.4-5.2V	380-890	8K~44.1K	SOP16
	WT2003Hxx-24SS	1-Wire / 2-Wire/UART	DAC/PWM	2.4-5.2V	380-890	8K~44.1K	SSOP24
	WT2003Hxx-32N	1-Wire / 2-Wire/UART	DAC/PWM	2.4-5.2V	380-890	8K~44.1K	QFN32
WT2000T	WT2000Tx-32N	UART/IIC	DAC	2.4-5.5V	380-890	8K~44.1K	QFN32
WT2605C	WT2605x-32N/24SS	UART	DAC	2.6-5.5V	/	8K~44.1K	QFN32 SSOP24

Function Features

WTV Series

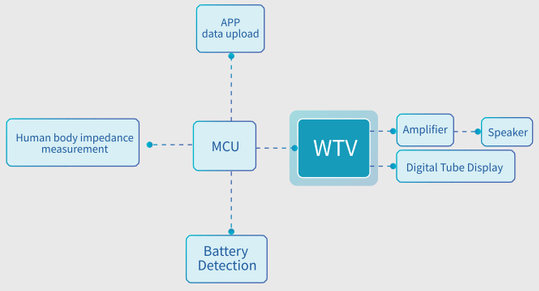
- Operating voltage：SOP8：2.4V-3.6V、QFN20\QFN32：2.4V-5.2V Standby current: deep sleep < 3uA, idle sleep < 30μA
- 10-bit high-precision AD sampling, capable of driving 8R 0.5W speakers directly
- Control mode supports single-wire, double-wire, UART, IIC serial control
- Voice capacity: 380 seconds, 890 seconds, 1800 seconds
- Rich expansion functions, support voice playback, digital tube drive, LED drive, infrared ranging, key scanning, RGB drive

WT2003H Series

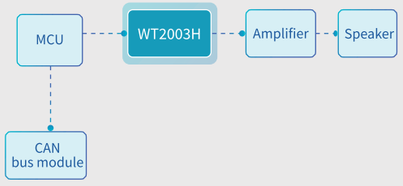
- Operating voltage : 2.4V-5.2V
- Supports high-quality audio formats for voice, including MP3 and Wav
- Standby current: less than 3uA in deep sleep, less than 30uA in idle sleep
- 10-bit high-precision AD sampling, capable of driving 8R0.5W speaker directly
- Control methods support one-wire, two-wire, UART
- Built-in capacity of the voice chip: 350 seconds, 900 seconds
- Supports external Flash with a maximum capacity of 128Mbit, TF card with 32G capacity, and U-disk with 32G capacity (TF and U-disk support FAT or FAT32 format)

Application Solution

Body Fat Scale Application Plan Diagram



Car Low-speed Alarm Application Diagram



Typical Applications

Floor Scrubber | Body Fat Scale | Low Speed Car Alarm | Sleep Monitor | Elevator | Traffic Equipment

High-power Voice Chip

High-power Voice Chip

Compared with traditional playback voice chips, the output circuitry has been enhanced, allowing the chip to output up to 3W without an external amplifier, directly driving an 8Ω/3W speaker. Two series have been launched: WTN6040FP-14S and WT588F02BP-14S, offering 40s and 170s voice durations respectively. Both chips can have their internal audio files repeatedly erased and reprogrammed via a downloader.

1:1 dimensions Chip Package Diagram

WTN6040FP-14S
9.9*6mm

WT588F02BP-14S
9.9*6mm

Chip Specifications

Series	Model	Communication Interface	Audio Output	Capacity (seconds)	Sampling Rate	Package
WTN6 Series	WTN6040FP-14S	single line/ double line	directly drive 1~ 3W speaker	40s	6K~32K	SOP14
WT588F Series	WT588F02BP-14S	single line/ double line	directly drive 1~ 3W speaker	170s	6K~32K	SOP14

Function Features

WTN6 Series

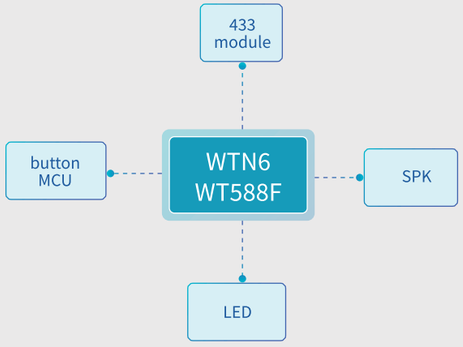
- Operating voltage:2.4V~5.5V
- Standby current is less than 5ua
- Supports a maximum of 224 voice address segments
- 12-bit PWM, direct drive 8R, 1~3W speaker
- Control mode: Digital pulse，button, one-line serial port, two-line serial port
- Voice capacity: 40 seconds

WT588F Series

- Operating voltage 2.2~5.5V; standby current less than 5ua
- 16bit PWM/DAC output, can directly drive 8R, 1~3W speakers
- Customers can replace the internal voice content of the chip through MCU or supporting programmer.
- Supports one-line serial port and two-line serial port (UART and IIC communication)
- Support 5000 address segments
- It has hardware SPI interface, UART interface, built-in comparator and other interfaces. Various functions can be customized for customers.

Application Solution

433 doorbell application diagram



Typical Applications

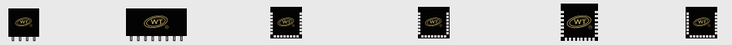
Fire alarm | Doorbell | Car horn | Medical products | Turnstile | Floor scrubber

Voice and Firmware Download & Update Standard Solution

Voice and Firmware Download & Update Standard Solution

On-Board Update: Reserve a programming interface on the PCBA for the voice chip. Use our downloader to update the audio files in the voice chip.
PC Update: If the product has a USB interface, it can connect to a computer, which will display a virtual USB drive. Voice files can be replaced directly on this virtual drive (updating the voice chip), and MCU program files can also be replaced to upgrade the MCU firmware.
USB (TF Card) Update: If the product has a USB interface, voice files can be placed on a USB drive and inserted into the product. The MCU can issue serial commands to let the voice chip replace its existing audio files with those from the USB drive. MCU program files can also be sent from the USB to the voice chip, which forwards them to the MCU via UART/SPI/I^2C protocols for MCU firmware updates.
MCU Update: The MCU can write data through serial communication (SPI/UART/I^2C) to erase and replace the original audio files in the voice chip.
Bluetooth Update: The WT2605C can connect to a smartphone via Bluetooth, allowing audio files on the phone to replace the files in the WT2605 chip. MCU program files can also be transmitted via Bluetooth using UART/SPI/I^2C protocols according to MCU requirements to update the MCU firmware.

1：1Chip Package Diagram



WTN6040F-8S 4.9*6mm
WT2003H-16S 9.9*6mm
WT2605X-32N (QFN) 4*4mm
WT2000T-32N(QFN) 4*4mm
WT2000T-52N(QFN) 6*6mm
WTVXXX 4*4mm

Chip Specifications

Update Methods	Model	Update Interface	Maximum Capacity	Update File Types	Operating Voltage	Synthetic Audio Mode
Replacing the board	WTN6040F-8S	SPI interface	99KByte	Bin (voice)	2.2V-5.5V	Lower computer software web version
	WT588F02B-8S	SPI interface	220KByte	Bin (voice)	2.4V-5.5V	
	WT2003Hx	UART interface	External 128M Flash	Bin (program+voice)	2.4V-5.2V	
	WTVx	UART interface	976KByte	Bin (program+voice)	2.4V-3.6V	
	WT2000Tx	UART interface	External 128M Flash	Bin (program+voice)	2.4V-5.5V	
PC replacement	WT2003H4+FLASH	USB interface	External 128M Flash	MP3/WAV	2.4V-5.2V	Customer audio source Our company provides webpage synthesis services
	WT2003H4+TF card	USB interface	External 32G TF card	MP3/WAV	2.4V-5.2V	
	WT2605x+TF card	USB interface	External 32G TF card	MP3/WAV	2.6V-5.5V	
	WT2000Tx	UART interface	External 128M Flash	Bin (program+voice)	2.4V-5.5V	
USB flash drive replacement	WT2003H4	UART control USB interface	External 128M Flash	MP3	2.4V-5.2V	
	WT2605x	UART control USB interface	External 128M Flash	MP3	2.6V-5.5V	
	WT2000Tx	UART interface	External 128M Flash	Bin (program+voice)	2.4V-5.5V	
MCU replacement	WT588E02B	SPI interface	220KByte	Bin (voice)	2.4V-5.5V	
	WT2003Hx	UART interface	220KByte	MP3	2.4V-5.2V	
	WT2003H+FLASH	UART interface	External 128M Flash	MP3	2.6V-5.5V	
	WT2605x+FLASH	UART interface	External 128M Flash	MP3	2.6V-5.5V	
	WT2605x+TF card	UART interface	External 32G TF card	MP3	2.6V-5.5V	
	WT2000Tx	UART interface	External 128M Flash	Bin (program+voice)	2.4V-5.5V	
	WTVxxx	UART interface	External 128M Flash	Bin (voice)	2.4V-3.6V	
	WT3000Tx	UART interface	External 128M FLash	MP3	2.6V-5.5V	
Bluetooth replacement	WT2605Cx	Bluetooth	External 128M Flash	MP3	2.6V-5.5V	
	WT2801Ax	BLE Bluetooth	External 128M FLash	MP3	2.6V-5.5V	

Features

WT588E Series

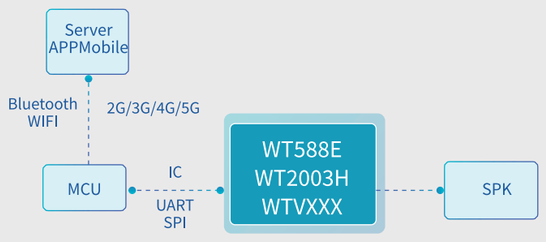
- Operating Voltage: 2.4–5.5V; Standby Current: <5μA
- 16-bit PWM/DAC output, can directly drive 8Ω 0.5W speaker
- Supports WAV files from 6kHz to 32kHz
- Users can replace internal voice content online via MCU or supporting downloader
- Supports simulated SPI communication
- Supports 224 voice addresses; expandable for more requirements
- Built-in 220kB storage (excluding main MCU program)

WT2605C (Bluetooth) Series

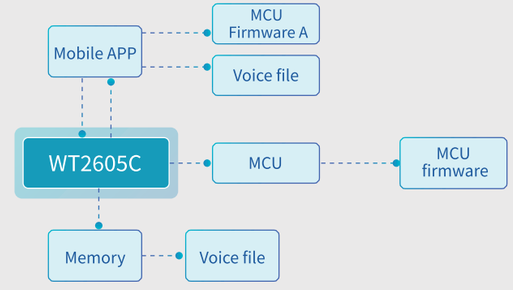
- Supports FAT/FAT32 file systems
- Control Method: AT command communication, default baud rate 115200 (configurable)
- Audio output: default DAC output on samples
- Audio can be copied among external Flash, TF card, and USB drive; program updates can also be done via TF/USB
- Supports high-quality audio formats (8kbps–320kbps), MP3 and WAV, with excellent sound quality
- Maximum support: 128Mbit Flash, 32GB TF card, 32GB USB drive
- High-power IO drive capability, can directly drive up to 64mA

Application Solution

Voice update diagram



Voice and firmware update plan diagram



Typical Applications

Floor scrubber | Voice prompter | Electric toothbrush | Electronic lock | Car dashboard | Broadcasting system

Extend Voice Chip

Extend Voice Chip

Sensor-extended voice chips combine voice chips with sensor algorithms to form a new solution system. They feature IO expansion, RGB light control, and infrared distance sensing. Infrared sensing supports distance settings. Additionally, they have low power consumption, high audio quality, and flexible control methods (IC, one-wire, two-wire, etc.), which are key characteristics of this product.

1:1 Chip Package Diagram

WTVxxx-P
4X4X0.75mm

WT2003H4-24SS
8.65*6mm

WT2000T-32N(QFN)
4*4mm

WT2605C-32N(QFN)
4*4mm

WT2000T-52N(QFN)
6*6mm

Chip Specifications

Series	Model	IO Port	Communication Interface	Audio Output	E²ROM	Key Scan	Capacity (seconds)	Drive	Package
WTV Series	WTVxxx-P	17 IO extensions infrared distance measurement RGB dimming	IIC/UART	10bit_DAC	16Kbyte	8*4	380-890	LED:8*10	QFN32
WT2003H Series	WT2003HP8-32N	20	UART	16bit_DAC	16Kbyte	8*4	380-890	LED:8*10	QFN32
WT2000T Series	WT2000Tx-32N	20	UART	24bit_DAC	20Kbyte	8*10	380-890	LCD:4*12	QFN32
WT588F Series	WT588F02KD-24SS	19	UART	16bit_DAC	256bit	8*2	170	LED:8*10	TSSOP24
WT2801 Series	WT2801A4-32N	23	UART	16bit_DAC	20Kbyte	9*12	380	LED:9*12	QFN32
WT2605C Series	WT2605Cx-32N	20	UART / Key	DAC Stereo	20Kbyte	8*10	/	LED:8*10	QFN32

Features

B014 – IO Expansion

- Can control voice playback, stop, and volume adjustment
- Three hardware PWM outputs, supporting RGB light breathing mode
- Supports IIC and UART communication modes, customizable functions for clients
- 20 IO ports configurable for input/output
- Deep sleep and related wake-up source configuration
- Playback busy setting
- Voice playback: 380s / 890s, external Flash supported

B004 – Infrared Distance Measurement

- The B004 supports controlling functions such as voice playback, stop, and volume adjustment. It enables self-learning of infrared distance measurement, allowing customers to set the measurement distance based on their actual application scenarios. The infrared measurement rate can also be configured, and customers may adjust it according to specific power consumption requirements.
- It provides multi-channel IO expansion for controlling more external devices through IO signals.
- Three hardware PWM outputs are available, enabling customers to set suitable pulse widths and frequencies as needed.
- The module supports both I²C and single-wire UART communication modes and can be customized with various functions based on customer requirements.

B001 – Digital Tube Driver (WTV Series)

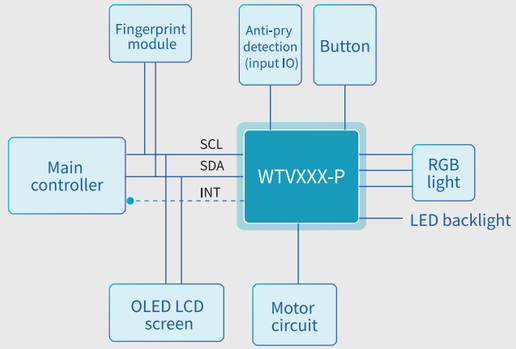
- Can control voice playback, stop, and volume adjustment
- Supports dynamic display scanning, can directly drive up to 10 × 8-segment digital tubes (digit count adjustable)
- 8×4 matrix keyboard scanning supports 32-key detection: short press, release, long press, and release
- Multi-IO output expansion (can reduce digital tube digits to increase IO output)
- Supports PWM dimming per digit to ensure consistent brightness
- Internal voice content replaceable via supporting downloader
- Supports IIC and UART communication modes, customizable for clients

B019 – WTV Electronic Lock Rear Board

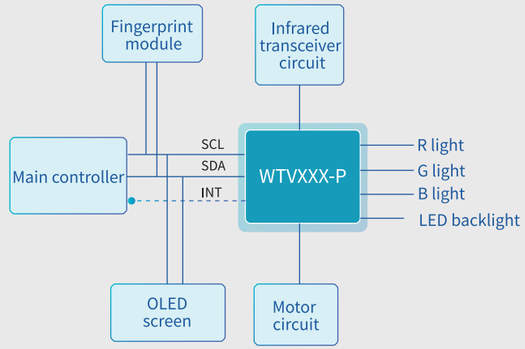
- Single DMA serial communication to ensure data integrity
- Motor driving functions with stall current detection
- Hall sensor detection, key detection, infrared proximity detection
- Dual battery monitoring
- UART serial-to-serial conversion (WIFI, peephole data forwarding)
- Voice playback: 380s / 890s, external Flash supported
- Built-in 4M / 8M Flash with user-partitionable space
- External temperature sensor support, outputs temperature values

Application Solution

IO expansion diagram



Infrared ranging solution



Typical Applications

Alarm clock

Forehead thermometer

Electronic lock

Rice cooker

Skipping rope machine

Sphygmomanometer

Audio Stream Codec Chips (Industrial Grade)

Multimedia Chips (Industrial Grade)

Our company develops multimedia codec chips integrating a 0.5W digital amplifier. The chips have built-in data storage, allowing audio to be stored in the voice chip or external memory. The MCU can control playback via IO commands, IIC, UART, or by sending serial data streams directly to the chip, making control simple. They support high-compression MP3 audio format as well as PCM format. MIC audio can also be captured, converted to standard MP3 digital signals, and transmitted via serial port to other devices. Currently, we offer the WT2003H, WTV380C, WT2605, WT2605C, and WT2801A series. Different chips are suitable for different application scenarios, effectively meeting customer product requirements. Following our philosophy of making the complex simple, customers can quickly get started with our multimedia codec chips."

1：1 Chip Package Diagram

WT2003Hx-16S 9.9*6mm | **WT2605-24SS** 8.65*6mm | **WT2003Hx-24SS** 8.65*6mm | **WT2605C-32N** 4*4mm | **WT2003Hx-32N** 4*4mm | **WTV380C-8S** 4.9*6mm

Chip Specifications

Series	Model	Communication Interface	Audio Output	Pickup Method	Audio Format	Audio Bitrate
WT2605 Series	WT2605-24SS	UART	DAC	Analog Signal, MIC	PCM\MP3	16K-320Kbps
	WT2605Cx-24SS	UART	DAC	Analog Signal, MIC	PCM\MP3	16K-320Kbps
	WT2605Cx-32N	UART	DAC	Analog Signal, MIC	PCM\MP3	16K-320Kbps
WT2003H Series	WT2003Hxx-16S	One-line/ Two-line / UART	DAC/PWM	Analog Signal, MIC	PCM\MP3	8k-160Kbps
	WT2003Hxx-24SS	One-line/ Two-line / UART	DAC/PWM	Analog Signal, MIC	PCM\MP3	8k-160Kbps
	WT2003Hxx-32N	One-line/ Two-line / UART	DAC/PWM	Analog Signal, MIC	PCM\MP3	8k-160Kbps
WT2801 Series	WT2801A4-32N	UART	PWM/DAC	Analog Signal, MIC	OPUS\MP3	16K-320kbps
WTV380C	WTV380Cx-8S	UART/SPI/IIC	PWM	/	PCM\MP3	8K-32Kbps

Function Features

WT2003H Series

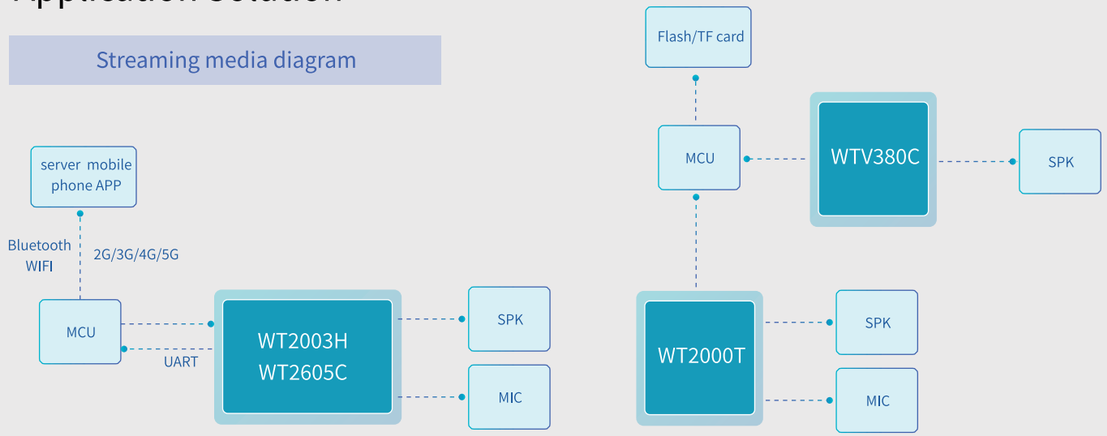
- Working voltage: 2.4V-5.2V
- Supports high-quality voice decoding formats, supports MP3 and Wav formats, audio sampling rate 8K-44.1K
- Standby current, deep sleep is less than 3uA, in-situ sleep is less than 30uA
- Pick up 16-bit audio ADC sampling, and the output can directly drive 8R 0.5W speakers and DAC output
- Use simple control method to support first line, second line and UART
- Voice chip built-in capacity: 350 seconds, 900 seconds
- Supports up to 128Mbit external Flash

WT2605 Series

- Working voltage: 2.4V-5.2V
- Supports high-quality voice decoding formats, supports MP3 and Wav formats, audio sampling rate 8K-44.1K
- Pick up 16-bit audio ADC sampling and output 16-bit DAC output
- Support UART using simple control method
- It can support up to 128Mbit external Flash, 32G TF card and 32G U disk (TF and U disk support format FAT or FAT32)

Application Solution

Streaming media diagram



Typical Applications

Walkie talkie | Treadmill | Electronic lock | Broadcast megaphone | 4G alarm | Robot

Multi-channel Mixing Chip

Multi-channel Mixing Chip

Waytronic has developed different mixing type chips for different market application scenarios: multi-channel internal voice mixing and playback, supporting up to 16 channels of voice mixing: internal voice + external audio signal input mixing and playback. Voice storage can be a single chip or can support external flash, TF card, etc. The control method is flexible, you can customize button control, and you can also control and play different voice mixes through the serial port.

1：1 Chip Package Diagram

WTV890
4X4X0.75mm

WTV380
4.9*6mm

WT2003HX-16S
9.9*6mm

WTV600-24SS
8.65*6mm

Chip Specifications

Series	Model	Communication Interface	Audio Output	Storage Method	Mixing Channel	Package
WT Internal Mixing	WTV380\890	UART/Single line/Double line/IIC	PWM/DAC	Internal Memory: 380-890S	2channels	SOP8/QFN32
	WTV600	UART/Single line	PWM/DAC	External flash：4-128M	16channels	SSOP24
	WT2003HX	UART/ingle line/Double line	PWM/DAC	Internal Memory：380-890S External flash：4-128M TFcard：32M-32G	2channels	SOP16/QFN32
Internal and External Mixing	WT2003HX	UART/ingle line/Double line	PWM/DAC	internal Memory：380-890S External flash：4-128M	one internal + one external channel	SOP16/QFN32
	WT2605A	UART	DAC	Internal Memory：180S External flash：128M TFcard：32M-32G	one internal + one external channel	SOP16/SSOP24

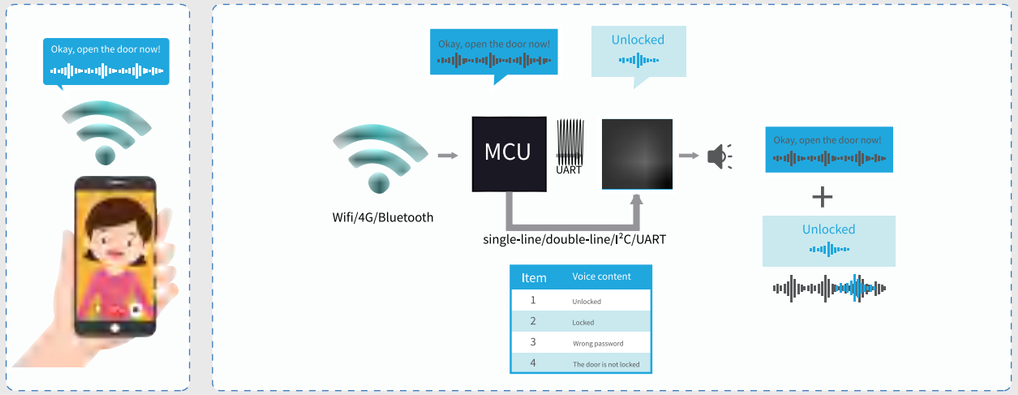
Function Features

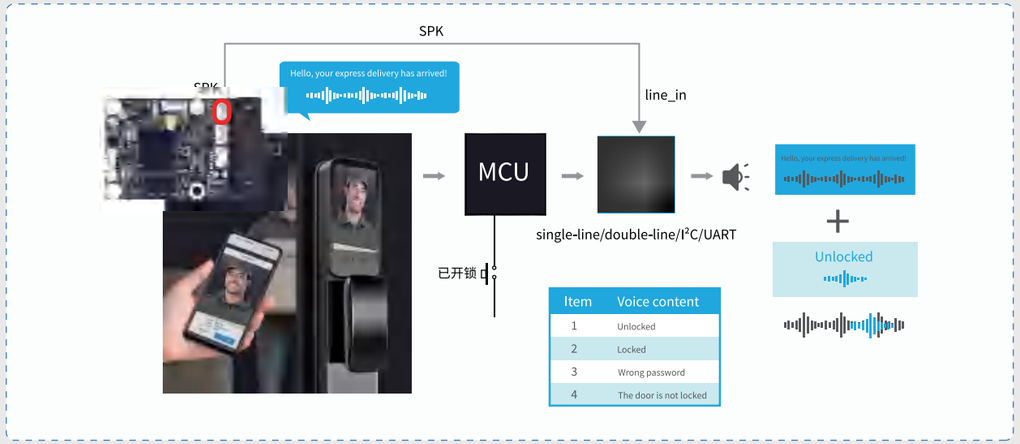
WT2003H Series

- Working voltage: 2.4V-5.2V
- Supports voice high-quality audio formats, supports MP3 and Wav formats, audio sampling rate 8K-44.1K
- Standby current, deep sleep is less than 3uA, in-situ sleep is less than 30uA
- 10bit high-precision AD sampling, 16-bit DAC, 16-bit digital power amplifier can directly drive
- Support 8ohm 0.5w ,4ohm 0.8w directly
- Control mode supports single-line, double-line, and UART
- Voice chip built-in capacity: 350 seconds, 900 seconds
- Supports up to 128Mbit external Flash

Application Solution

Electronic lock scheme diagram





Typical Applications

Sleep instrument

Electronic lock

Game console

Electronic keyboard

High-end doorbell

white noise speaker

Recording Chip

Recording Chip

Via MIC or line input, or through mobile Bluetooth recording to the chip (no APP required), audio files can be recorded into the chip, enabling on-site recording functionality. Currently available series include WT2003H, WT2000P, WT2605, and WT2000. Recording duration can range from 1 second to 6 months. Part of the audio can also be pre-stored in the chip, remaining fixed and not overwritten, for use as product prompt sounds.

1：1 Chip Package Diagram

WT588F02A-16S 9.9*6mm | WTR096A-16S 9.9*6mm | WTR096A-28SS 10*6mm | WT2003HX-16S 9.9*6mm | WT2003HX-24SS 8.65*6mm | WT2605X-32N(QFN) 4*4mm | WT2000T-32N(QFN) 4*4mm | WT2000T-52N(QFN) 6*6mm

Chip Specifications

Series	Model	Communication Interface	Audio Output	Single-chip Recording Duration	Sampling Rate	External Storage	Recording Method
WT2000P Series	WT2000P-8S	Button/One line serial port	DAC/PWM	12bit-ADC	16-64kbps	Built in 180 seconds flash：4M~128M	Line/MIC
WT2003H Series	WT2003Hx-16S/24SS	UART/One line serial port button	DAC/PWM	16bit-ADC SNR=79dB 16bit-DAC SNR=95dB	8-320kbps	Built in: Maximum 360 seconds flash：4M~128M TF/U drive: 128M~32GB	Line/MIC
WT2605A Series	WT2605A4-16S/24SS/32N WT2605A8-16S/24SS/32N	UART/button	DAC/PWM	16bit-ADC SNR=90dB 16bit-DAC SNR=95dB	8-384kbps	Built in: Maximum 360 seconds flash：4M~128M TF/U drive: 128M~32GB	AUX/MIC
WT2000A Series	WT2000A8-40N	UART	DAC/PWM	24bit-ADC SNR=95dB 24bit-DAC SNR=105dB	8-384kbps	Built in: Maximum 90 seconds flash：4M~128M TF/U drive: 128M~32GB	AUX/MIC

Features

WT2605A Series

- 132-bit CPU, 160 MHz, integrates UART, I²C, ADC, PWM, GPIO and other peripheral interfaces
- 16-bit DAC, SNR=95dB; 16-bit ADC, SNR=90dB
- Supports sampling rates: 8KHz–48KHz, bitrate: 8–384Kbps
- One full-speed USB 2.0; one full-duplex UART
- Built-in storage up to 180 seconds, also supports external Flash, TF card, USB drive
- Supports MIC, line-in, AUX recording
- Supports direct mobile phone recording update to the chip (no APP required)
- Operating temperature: -40–85°C
- After recording audio, supports serial output of data

WT2003H Series

- Supports external Flash up to 128 Mbit
- Control Modes: One-wire serial (customizable UART or button control)
- Supports high-quality recording, sampling rates: 8K, 12K, 16K, 20K, 24K
- Operating Voltage: 2.4–5.2V
- Sleep Current <5 μA
- Supports PWM output (direct drive 8Ω/0.5W speaker), DAC output
- High-power 10-drive capability, can directly drive up to 64 mA

WT2000A Series

- 1. Dual-channel MP3 chip, local audio supports sampling rates: 8–44.1K, bitrate: 8–384 kbps
- 2. Maximum CPU frequency up to 160 MHz, RAM 600 KB
- 3. External crystal parameters for the voice chip: 24 MHz, 12 pF, ±10 PPM; specific model can be discussed with our sales team
- 4. Supports external 128 Mbit SPI Flash; USB drive supports FAT/FAT32 file system, MP3 format supported
- 5. Standard UART communication interface, enabling flexible playback, recording, and serial output of recorded data
- 6. Audio codec supports 24-bit high-precision Audio ADC and 24-bit high-precision DAC
- 7. High-performance stereo, ADC with 95 dB SNR

Major categories	Segmented product categories	Chip model	Product features	Application scenarios
Offline Recognition	Low second count Recording chip	WT2000P-8S	1.Recording IC within 3 minutes 2.8~64kbps recording bitrate optional 3.12 bit high-precision ADC ensures recording quality 4.10 bit, AD button can expand applications 5.Fixed sound can be reserved	● Meeting Minutes (WT2605A, WT2000A8) Including: recording pen, recording workstation, meeting recording equipment ● Toy (WT2000P) Pet products category (WT2000P, WT2003H, WT2605A) Including: pet feeders, pet trainers, pet toys, pet pendants, pet collars, pet speakers, etc ● Equipment Monitor (WT2605A) Industrial equipment, automotive chassis, medical equipment, etc., recording and audio data monitoring, analysis. ● Interphone (WT2003H, WT2605A) Interphone, pager ● Monitoring device (WT2605A) Home monitoring devices, telephones, locators ● Other (WT2000P, WT2003H, WT2605A) ● Greeting cards, adult products, audio posters, gift boxes, electronic cigarettes, audio albums, etc
	Normal sound quality Recording chip	WT2003H4-16S WT2003H0-16S+FLASH	1. Maximum support for 128M flash, 3600 second recording 2.8K~24KHz recording sampling rate optional 3.16-bit high-precision ADC and 16 bit high-precision DAC 4.SNR=79dB (ADC)；SNR=95dB (DAC) (the larger the better) 5. Fixed sound can be reserved	
	high sound quality Recording chip	WT2605A4-24SS WT2605A4-32N	1. Maximum support for 128M flash, 128GB (TF card or USB drive) 2. MP3 recording, with optional sampling rates ranging from 8kbps to 384kbps 3.16-bit high-precision ADC and 16 bit high-precision DAC 4.SNR=90dB (ADC)；SNR=95dB (DAC) (the larger the better) 5. Fixed sound can be reserved	
	Super Quality Recording chip	WT2000A8-40N	1. Maximum support for 128M flash, 128GB (TF card or USB drive) 2. MP3 recording, with optional sampling rates ranging from 8kbps to 384kbps 3.24-bit high-precision ADC and 24 bit high-precision DAC 4.SNR=95dB (ADC)；SNR=104dB (DAC) (the larger the better) 5. Equipped with professional noise reduction algorithms (combining software and hardware) 6. Fixed sound can be reserved	
	recording Upload chip	WT2003H4-16S WT2605A4-24SS WT2000A8-40N	1. MP3 audio data, 8K~320kbps sampling rate optional 2. Can record and output audio data simultaneously 3. It can be stored first and controlled to output any recording data through the serial port 4. Standard UART protocol	Recording badges, recording pens, conference recordings, recording monitoring equipment, baby soothing products, rescue equipment, etc
	Bluetooth Recording chip	WT2605A8-32N	1. Comes with BLE and BT functions 2. You don't need to download the app on your phone to input the sound played on your phone into the IC 3. The volume of the input sound is not related to the volume of th phone 4. The recording quality is close to the original sound, with no background noise, clean and high fidelity	Pet products, baby products, alarms, etc
	shout Device chip	WT2003H4-16S	1. Fixed voice storage+recording 2. Play while recording (direct)	Building -Ntercom System
	multi-channel Recording chip	WT2003H4-16S WT2605A4-24SS WT2000A8-40N	1. Supports up to 4 recording channels. (Can be mic and line)	Live entertainment, conference office, etc

Typical Applications

Pet Products | Maternal and Infant Products | Industrial Monitoring | Call System Loudspeaker | Digital Voice Recorder | Recording Device

Bluetooth Chip

Bluetooth Chip

WT series Bluetooth chips feature low cost, low power consumption, high reliability, and strong versatility. They use UART serial communication for control, supporting Bluetooth audio playback, Bluetooth calls, and BLE data transmission. They also support local audio playback (MP3/WAV format) and can use SPI-Flash, TF card, or U disk as storage. Features include file index playback, interrupt playback, single track loop, all-track loop, random playback, and 31-level volume adjustment. Maximum support includes external 128Mbit Flash, 32G TF card, and 32G U disk.

1：1 Chip Package Diagram

WT2605-24SS
8.65*6mm

WT2605C-32N(QFN)
4*4mm

Chip Specifications

Series	Model	Built-in storage	Audio Output	Bluetooth Function	Operating Voltage	Package
WT2605Series	WT2605A-24SS	4Mbit	DAC	Bluetooth 5.1BR/EDR&BLE	2.6V-5.5V	SSOP24
	WT2605C-32N	C4：4Mbit C8：8Mbit	DAC stereo	Bluetooth 5.1 BR/EDR/BLE	2.6V-5.5V	QFN32
	WT2605-24SS	4Mbit	DAC stereo	Bluetooth 5.1 BR/EDR	2.6V-5.5V	SSOP24
WT2606ASeries	WT2606Ax-40N	A8：8Mbit A6：16Mbit	24bit DAC stereo	Bluetooth 5.2BR/EDR&BLE	2.6V-5.5V	QFN40
WT2801Series	WT2801A-16S	4Mbit	DAC mono	Bluetooth 5.3 BLE	2.6V-5.5V	SOP16
	WT2801A-32N	4Mbit	DAC mono	Bluetooth 5.3 BLE	2.6V-5.5V	QFN32

Function Features

WT2801 Series

- Bluetooth Version: 5.3 BLE
- Supports GFSK and π/4 DQPSK packet types
- Supports BLE data transparent transmission
- Supports PHY rates 1M, 2M
- Supports master, slave, and master/slave combined modes
- Control Method: Standard UART serial communication, default baud rate 115200

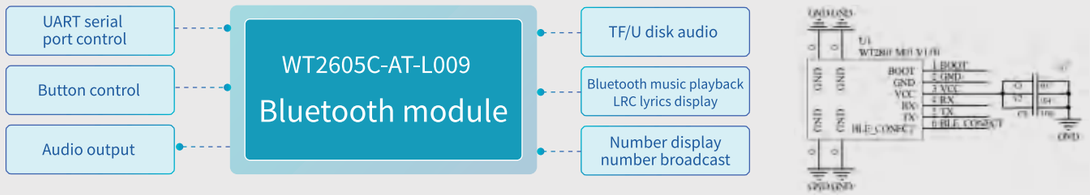
Function Features

WT2605C-Series

- Bluetooth version: 5.3+BR+EDR+BLE
- Support Bluetooth protocol: a2dp\avctp\avdtp\avrcp\hfp\spp\smp\att\gap\gatt\rfcomm\sdp\l2cap
- Support Bluetooth audio decoding: SBC, AAC
- Support Bluetooth BLE data transmission, PHY rate 2M
- Support master, slave, master/slave integrated mode
- Support SPI-Flash, support TF card, U disk
- Support FAT, FAT32 file system
- Control mode: AT command communication, default baud rate 115200
- It does not play by default after power-on; it has BUSY status indication and BUSY is high level when playing (configurable)
- Audio output mode, DAC stereo output
- Audio can be copied to each other through plug-in Flash, TF card, U disk, and three types of peripheral devices. Through TF card, U disk, update program and other functions
- Supports high-quality voice audio formats, (8kbps~320kbps) beautiful sound, MP3, WAV formats
- Can support up to 128Mbit Flash, 32G TF card and 32G U disk

Application Solution

WT2605C Scheme diagram



Typical Applications

Car dashboard | Smart appliances | Fitness equipment | Shared device | Eye massager | Early education machine

Voice Recognition Chip (Supports BLE Extension)

The WTK6900 series chip is a local voice recognition chip that can perform voice recognition, command word self-learning, and voice noise reduction. It features powerful echo cancellation and environmental noise suppression capabilities. This series also supports multiple global languages such as Chinese, English, and Japanese, and can be widely applied in home appliances, lighting, toys, wearable devices, industrial, and automotive products to enable voice interaction, control, and various intelligent voice solutions.

1:1 Chip Package Diagram

QFN32
4*4mm

SSOP24SS
8.65*6mm

SOP16S
9.9*6mm

Chip Specifications

Model	Features	Recognition Languages	Recognition Accuracy	Number of Commands	Recognition Distance	Power Consumption	Capacity	Package
WT2606A	Strong Noise Immunity / Requires Crystal / OTA Upgrade / Supports UART Communication / Supports Audio Feedback & Interrupt	Chinese English	98%	Wake Words: 10 Command Words: 300	3-5M	30-40mA	16M 32M 128M	QFN40
WTK6900FC	Strong Noise Immunity / No Crystal Needed / OTA Upgrade / Supports UART Communication / Surpports IO Customizatio	Chinese English Japanese Korean	98%	Wake Words: 10 Self-Learning Wake Words: 1 Command Words: 300 Self-Learning Command Words: 19	5-8M	50-60mA	32M 64M	SS0P24
WTK6900HC	Strong Noise Immunity / No Crystal Needed / OTA Upgrade / Supports UART Communication / Surpports IO Customizatio	Chinese English	98%	Wake Words: 10 Command Words: 300	5-8M	25-30mA	8M 16M 32M	S0P16 SS0P24 QFN32
WTK6900HA	Medium Noise Immunity / No Crystal Needed / OTA Upgrade / Supports UART Communication / Surpports IO Customizatio	Chinese English	95%	Wake Words: 10 / Command Words: 300	3-5M	15-20mA	4M 8M 16M	S0P16 SS0P24 QFN32
WTK6900L	Low Noise Immunity / No Crystal Needed / Supports UART Communication / Surpports IO Customizatio	Chinese	90%	Command Words: 50	0.5-3M	20-25mA	2M 4M 8M	SOP8
WTK6900P	Low Noise Immunity / No Crystal Needed / Supports UART Communication / Surpports IO Customizatio	Chinese English	85%	Command Words: 20	0.5-3M	5-10mA	4M	ESOP8 SOP16

Function Features

WTK6900HC

- No crystal required, USB upgrade supported, reliable far-field recognition up to 5 meters

WTK6900FC

- High cost performance, multi-language, large capacity, supports self-learning of 20 commands

WTK6900L/WTK6900P

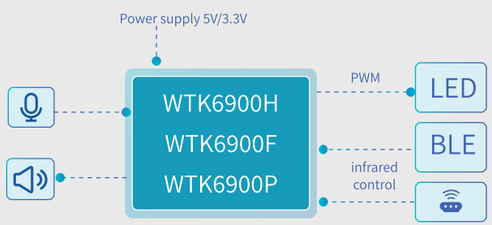
- SOP8 package, small size, low cost, suitable for short-distance recognition solutions

WTK6900HD/FC

- Special sound detection: crying sound, snoring recognition

Application Solution

WTK6900 scheme diagram



Spi-Flash Chip

WT25Q series flash, highly compatible with our voice chips. Currently available in a full range from 8M to 128M, with two package types: SOP8 (150mil) and SOP8 (208mil).

1:1 Chip Package Diagram

WT25Q16X-8S
4.9*6mm

WT25Q32X-8S
4.9*6mm

WT25Q64X-8S
4.9*6mm

WT25Q128X-8S
5.2*8mm

Chip Specifications

Series	Model	Capacity (bit)	Operating Voltage	Power Consumption	Package	Operating Temperature
WT25QXX Series	WT25Q16X-8S	16M	2.4~3.6V	<1ua	SOP8 (150mil)	-40~85°
	WT25Q32X-8S	32M	2.4~3.6V	<1ua	SOP8 (150mil)	-40~85°
	WT25Q64X-8S	64M	2.4~3.6V	<1ua	SOP8 (208mil)	-40~85°
	WT25Q128X-8S	128M	2.4~3.6V	<1ua	SOP8 (208mil)	-40~85°

Typical Applications

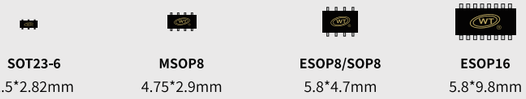
Lamps | Range hood | Fan | Massage chair | Adult novelty products | Air conditioner

Power Amplifier Chip

Power Amplifier Chip

There are various types of power amplifier chips, ranging from 1W to 64W. The currently promoted power amplifier chips have all been debugged with our company' s voice chips, ensuring the highest level of sound quality

1：1 dimensions Chip Package Diagram



SOT23-6
1.5*2.82mm

MSOP8
4.75*2.9mm

ESOP8/SOP8
5.8*4.7mm

ESOP16
5.8*9.8mm

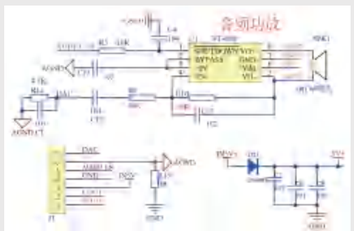
Chip Specifications

Parameters	WT8509	WT9110B	WT8623	WT8673
Type	AB/D	D	D	D
Channels	Mono	Mono	Mono	Mono
Input Audio Type	DAC/PWM	DAC/PWM	DAC/PWM	DAC/PWM
Input Method	Single-Ended / Differential	Single-Ended / Differential	Single-Ended / Differential	Single-Ended / Differential
Package	ESOP8 (Bottom Heat Sink Must Be Grounded)	ESOP8 ((Bottom Heat Sink Must Be Grounded)	ESOP16 (Bottom Heat Sink Must Be Grounded)	ESOP16 (Bottom Heat Sink Must Be Grounded)
Recommended Supply Voltage	2.5-8.5V	6-14.5V	6-16V	6-21V
Max Output Power	8.5V 4R 8.5W	14.5V 4R 28W	16V 4R 32W	21V 4R 64W
Speaker Configuration	4R 8.5W	4R 28W	4R 32W	4R 64W
Amplifier On/Off Control	High-On Low-Off	High-On Low-Off	High-On Low-Off	High-On Low-Off
Quiescent Current	≦4.6mA	When it' s 9V ≦17mA Typical≦10mA	≦15mA Typical≦10mA	≦15mA Typical≦10mA
Shutdown Current	≦0.1uA	/	≦50uA	≦50uA
ESD Voltage (HBM)	±4000	±2000	±2000	±2000
ESD Voltage (MM)	±400	±300	±200	±200

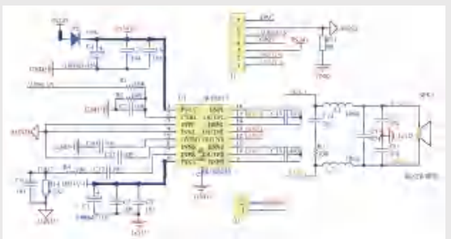
Parameters	WT1312	WT4890	WT8002	WT8302	WT8871
Type	PWM	AB	AB	D	AB/D
Channels	Mono	Mono	Mono	Mono	Mono
Input Audio Type	PWM	DAC/PWM	DAC	DAC/PWM	DAC
Input Method	Differential	Single-ended/differential	Differential	Single-ended/differential	Differential
Package	SOT23-6	MSOP8	SOP8	SOP8/MSOP8	ESOP8 (grounding of bottom heat dissipation required)
Recommended Supply Voltage	2-5V	2.2-5V	2.2-5V	2.5-5V	2-5V
Max Output Power	5V 4R 2.3W	5V 8R 1W	5V 4R 2.4W	5V 4R 2.9W	5V 2R 5W/5V 4R 3W
Speaker Configuration	4R 2.3W	8R 1W	4R 2.4W	4R 2.9W	2R 5W/4R 3W
Amplifier On/Off Control	/	High-On Low-Off	Low-On High-Off	High-On Low-Off	Low-On High-Off
Quiescent Current	≦150uA Typical≦100uA	≦10mA Typical≦5mA	≦10mA	≦4mA	≦10mA Typical≦6mA
Shutdown Current	≦3uA Typical≦1uA	≦2uA Typical≦0.1uA	≦1uA	≦0.1uA	≦2uA Typical≦0.8uA
ESD Voltage (HBM)	±2000	Discharge of 100□pF through 1.5kΩ resistor	2000	±4000	3000
ESD Voltage (MM)	±200	Discharge of 200–240 pF through 0□Ω resistor	200	±400	250

Application Solution

WT4890 application scheme diagram



WT8673 application scheme diagram



Typical Applications

Toy　Alarm　Sweeper　Electronic locks　Broadcast　Loudspeaker

Sensor

Sensor Series

The MCU infrared sensing module can be applied to object detection. When an object enters the detection range, the reflected infrared energy changes, and the distance can be judged by detecting the changes in reflection. Compared with general infrared sensing modules on the market, this module is smaller in size, supports detection distance up to 100cm, and features ultra-low standby power consumption of only 12μA. It provides both IO and UART communication options for users, enabling quick adjustments to module characteristics and offering the advantage of fast and convenient development.

1:1 Chip Package Diagram

WTU201F2
4.9*6mm

Chip Specifications

Model	Type	Communication Interface	Power Consumption	Distance	Operating Voltage	Package
WT4001A	Infrared Sensor	IO/UART	Around 16μA	5CM-90CM	DC3.0V~5V	SOP8/Module
WT4101A-C01	Microwave Sensor	IO	Around 430μA	1-2M	DC2.8V~3.5V	Module
WT4101A-C04	Microwave Sensor	IO	Around 880μA	1-13M	DC4V~12V	Module
WT4101A-C04L	Microwave Sensor	IO	Around 42μA	1-8M	DC4V~12V	Module
WT4102A	Millimeter-Wave Sensor	IO/UART	Minimum 12μA	0.3-8M	DC4.0-12V	Module
WT4103A	Millimeter-Wave Sensor	IO/UART	125MA	1-6M	DC5V-28V	Module

Features

I/O Version

- When DATA is pulled low, the module enters infrared ranging learning mode, LED indicator starts flashing, and learning ends when LED turns off
- Infrared response rate defaults to 500ms
- INT pin default valid output is high level

UART Version

- Infrared learning mode, customers can self-learn distance based on actual application scenarios
- Infrared response rate setting, customers can adjust according to actual power consumption needs
- INT pin output setting can be high level or low level when detecting signal

Features

WT4101A-C01 Microwave Radar

(Size: 18mm×12mm×16mm)

- Short-range detection applications, distance range: 0–3m forward
- Receiver link noise figure: 20dB
- Transmit power: 3dBm
- Integrated 50Hz/60Hz power frequency interference filtering algorithm
- Integrated WiFi and other wireless communication interference filtering algorithm
- Operating voltage: 2.5V–3.5V
- Operating current: (260μA–9mA)
- Default working mode: 880μA
- High power consumption mode: 9mA

WT4101A-C04 Microwave Radar Sensor

(Size:18mm*19.5mm*1.6mm)

- Short-range detection applications, distance range: 0.5–13m forward
- Receiver link noise figure: 20–30dB
- Transmit power: 3dBm
- Integrated 50Hz/60Hz power frequency interference filtering algorithm
- Integrated WiFi and other wireless communication interference filtering algorithm
- Integrated light sensing function with adjustable sensitivity
- Operating voltage: 2.5V–3.5V
- Operating current: (38μA–9.6mA)
- Default working mode: 880μA
- High power consumption mode: 9mA

WT4001A Infrared Distance Sensor

(Size:17.5 x 10 mm)

(Invention Patent: ZL 202222853999.7, Infrared Control Circuit and Controller)

- Long-distance detection applications
- Operating voltage: 3V–5V
- Low power consumption
- Strong anti-interference ability
- Operating current: 35μA
- Standby current: 16μA (3.3V / detection distance 70cm / detection time = 1s)
- Wide working range: 5–90cm
- Factory calibrated
- Distance learning function
- Optional communication interface: UART mode and I/O mode

WT4101A-C04L Microwave Radar Sensor

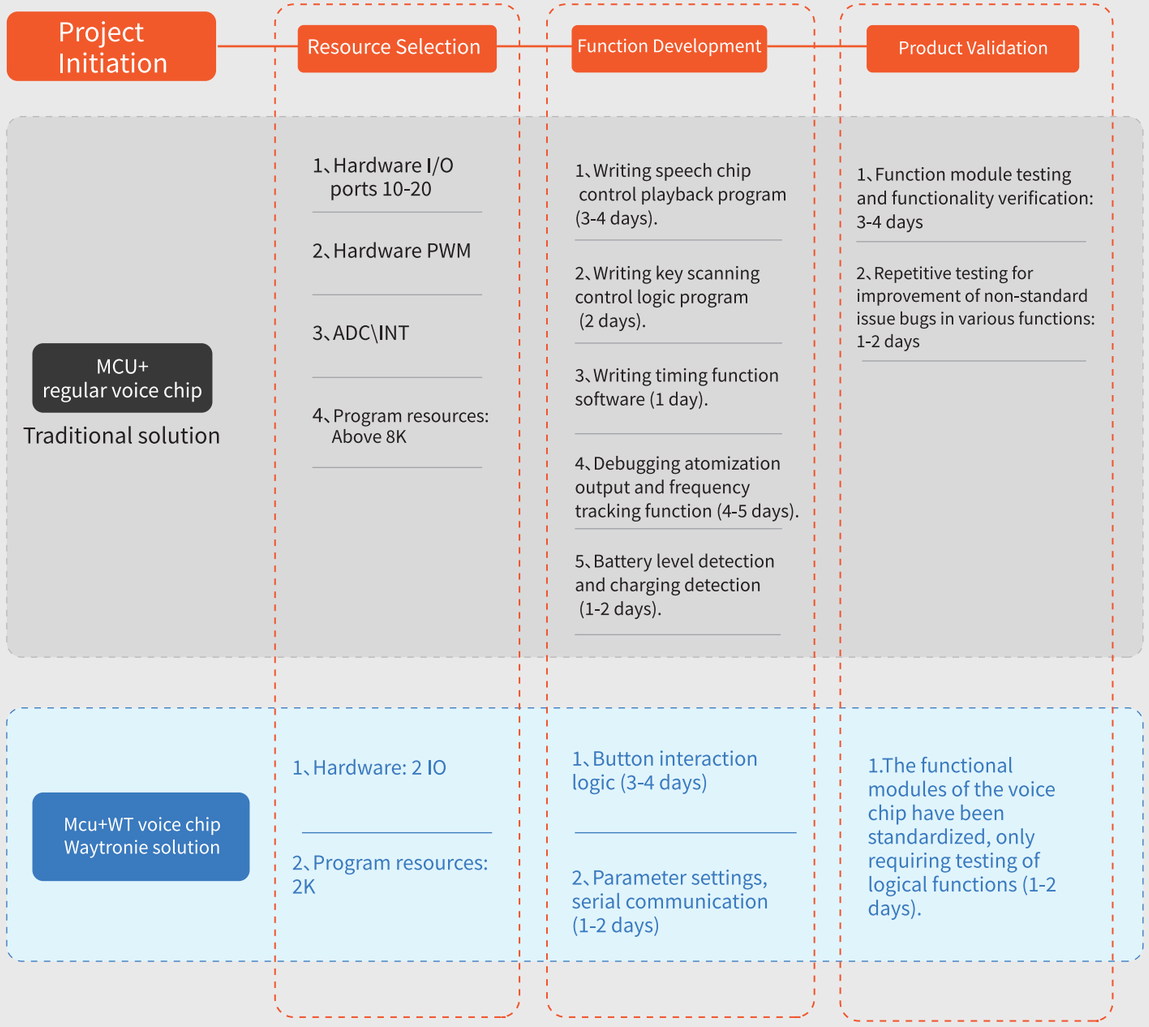
(Size:18mm*19.5mm*1.6mm)

- Detection distance range: 1–8m forward
- Transmit power: 3dBm
- Operating frequency range: 5.725GHz–5.875GHz
- Operating voltage: 5V–12V
- Operating current: as low as 42μA
- Integrated 50Hz/60Hz power frequency interference filtering algorithm
- Integrated WiFi and other wireless communication interference filtering algorithm
- Integrated light sensing function with adjustable sensitivity
- Operating temperature: -20~85°C

Development Process

Development Process for White Noise/Sleep Machine Humidifier Project

Functional Requirements: Implement 10 buttons to control music, natural sounds (wind, rain, thunder), white noise, volume, timing, mist power adjustment; LED driver display timing; low voltage battery detection; charging status indication; charging detection. Ensure that there is no stuttering or interrupted sound playback.



Compared to traditional solutions, our company's solution has the following advantages:：

- Simpler microcontroller development.
- Significantly reduced product development cycle.
- The microcontroller has become simpler rather than complex, leading to cost reduction.

MCU+Standard Features (Code)

Recording product category	Function code	Functional Description
WT2000P4-8S	R008	1. Built-in three test voices; 2. ADKEY: K1 press and hold to record / release to end recording, highest sound quality, maximum 30 seconds; K2 short press to play recording; K3 short press to play test voice; K4 play next track; 3. LED indicator lights up during recording as a prompt;
WT2605A Series	R009	**【Basic Recording Function】as follows:** Voice playback supports up to 65,536 audio files, supports WAV, MP3 formats (sampling rate 8K–44.1K, bit rate 8kbps–320kbps); BUSY status indicator: low level when playing, high level when not playing (configurable); Audio output mode default is DAC output, non-configurable, hardware supports 16-bit DAC output; Operation commands: single playback, insert playback, combined playback, loop playback, and query function; Standby current less than 30μA, deep sleep less than 2μA; Volume adjustment 0–31 levels, maximum support for external 128Mbit Flash; AD button functions: pause/play, previous/volume+, next/volume-, stop, mode switch;
	R010	**【Basic Recording Function】same as above** Supports TF card and USB flash drive as storage, such as 32G TF card and 32G USB drive (supports FAT or FAT32 format);
	R011	**【Basic Recording Function】same as above** Supports Bluetooth recording, mobile phone Bluetooth playback, recording selection via command/button;
	R012	**【Basic Recording Function】same as above** Supports real-time recording acquisition and upload; Supports recording data storage and subsequent retrieval for upload;
WT2000T4-32N	R015	**【Basic Recording Function】same as above** Supports SPI-Flash, TF card, and USB flash drive as storage, supports external Flash up to 128Mbit, 32G TF card and 32G USB drive (supports FAT or FAT32 format);
WT2605C Series	R016	**【Basic Recording Function】same as above** Supports SPI-Flash, TF card, and USB flash drive as storage, supports external Flash up to 128Mbit, 32G TF card and 32G USB drive (supports FAT or FAT32 format); Supports clock function; Supports clock recording;
WT2003H4-16S (With HP8-32N version) + SD card	R100	1. A02 with SD card virtual USB drive recording; 2. Flash built-in one 20s voice content;
WT2003H0-16S	R101	1. One recording, sampling rate 24K, 60s; 2. Three fixed voices (external flash);
	R102	1. One recording, three fixed voices (4M flash); 2. Pin 15 power supply, low power consumption
WT2003H0-24SS Main control chip and 2MB flash	R103	1. SPI control recording; 2. 1–30 as fixed voice addresses, 31–33 as recording addresses (external 2M flash);
WT2003H4-16S	R104	1. 00H–15H as fixed voice addresses, 22 segments; 2. 00H–07H as recording addresses, 8 segments
	R105	TF card recording, with virtual USB drive function;
	R106	1. Pin 1 button low level short press to record, short press to end; 2. Pin 15 BUSY as indicator light, flashes during recording, stops when finished; 3. External USB drive;
WT2003HP8-32N	R107	16k Sampling rate, 15 recording segements, virtual USB drive recording;
WT2003HP8-32N	R108	1. 1 recording segment, 3 fixed voice segments; 2. Recording sampling rate 16K, recording duration 60s;
WT2003H0-16S+FLASH	R115	Single recording segment playback, with recording prompt tone (external flash);
	R116	6 recording segments (external flash);
	R117	7 recording segments, recording playback can loop (external flash);
WT2003H0-24SS+FLASH	R118	8 recording segments, command deletion, auto-overwrite when full (external flash);
WT2003H4-16S	R119	UART external flash recording:
	R120	1. Mic collects ambient sound, when volume meets the condition, triggers playback; playback cannot be interrupted. 2. Pin 1, Pin 2, Pin 3 as 3 LEDs, same flashing frequency, used for flowing light effect;

MCU+Standard Features (Code)

Recording product category	function code	Functional Description
WT2003H4-16S	R109	1. Pin 1 button long press to start recording, 1 recording segment, 30–60 seconds, release to automatically play back once; press again to interrupt playback and re-record; 2. Pin 16 high level hold for loop playback; 3. Pin 15 as BUSY, LED recording indicator, steady on during playback;
	R110	1. Pin 1 as recording button, duration 30 seconds; 2. With recording prompt tone; 3. Auto-play recording at power-on, short press cannot interrupt playback, long press interrupts playback and starts recording, release to stop recording;
	R111	1. Pin 1 recording button, long press to record, 10s; 2. Pin 16 playback button, short press to play; 3. Pin 15 LED1, recording indicator; 4. Pin 2 LED2, playback indicator;
	R112	1. One recording segment, 8K sampling, 77 seconds; 2. Recording file uploaded via UART to customer server;
	R113	No playback required, only recording; upload PCM data to customer MCU, no duration requirement.

Recording product category	function code	Functional Description
BT+BLE+MP3 (WT2605C8)	L001	BT (audio Bluetooth) + BLE (transparent/data transmission Bluetooth) + MP3 UART serial version
BT+MP3 (WT2605C8)	L002	BT (audio Bluetooth) + BLE (transparent/data transmission Bluetooth) + MP3 AT serial version
BLE+ MP3 (WT2801)	L003	BT (audio Bluetooth) + MP3 UART serial version
BLE+ MP3 (WT2605C8)	L004	BT (audio Bluetooth) + MP3 AT serial version
BLE+ MP3 (WT2801)	L005	BLE (transparent/data transmission Bluetooth) + MP3 UART serial version
BT+MP3 (WT2605C8)	L006	BT (audio Bluetooth) transmitter
AI dialogue/general term control (W3000A-M06 module/WT2606A)	I001	Wake-up NAD / AI dialogue / offline commands / online commands / server communication protocol edge-side deployment and integration
Offline/Online Recognition (W3000A-M06 module/WT2606A)	I002	Online/offline speech recognition (multilingual)
Offline/Online TTS (W3000A-M05 module/WT2605C)	I003	Online TTS / audio download and playback / update local audio
Two way intercom solution	I004	Two-way intercom (API access)
Recording upload plan	I005	Recording upload to server
Bluetooth AI Dialogue Solution	I006	Bluetooth cloud connection / AI dialogue / semantic recognition / screen driving / audio Bluetooth
Infrared Sensor-WT4001	S-IR001	Infrared sensor compatible with IO port, UART version
	S-IR002	Infrared sensor + LED driver control
Radar Sensor-WT4101	S-RD001	Radar sensor IO port version
Radar Sensor-WT4102	S-RD002	Radar sensor compatible with IO port, UART version

Recording product category	function code	Functional Description
Standard MP3 Chip	A001	MP3 playback supports mounting Flash/TF card/USB drive, supports PC mode
	A020	Built-in storage, single chip, UART update MP3
	A021	External storage, UART update MP3
	B010	Voice chip for medical devices + serial control compliant with national standard
IO Function Expansion	B001	Drive 8×10-digit segment display + buttons + voice
	B006	30 WS2812 RGB LEDs dynamic drive + voice playback + insert playback + combined playback + voltage detection
	B007	Sleep instrument + 12 buttons + RGB control + timing function + seamless loop + combined playback + voltage detection
Offline Recognition	S001	Standard UART output
	S002	Standard UART output + self-learning
	S003	Standard UART + 0-control dimming
	S004	Standard UART + 0-control dimming + infrared remote control
	S005	UART H0 control output high/low
	S200	Crying recognition
	S201	Snoring recognition
Offline TTS	T002	Offline TTS + fixed voice + external flash
	T001	Offline TTS + fixed voice
	TL001	Offline TTS + BLE
	TS001	Offline TTS + offline speech recognition
Audio Stream Decoding	D001	Audio stream decoding + fixed voice
Electronic Lock Expansion Solution	B014	I^2C communication + IO port input/output control + voice playback
	B019	Infrared ranging + 17 IO port input/output
TFT Display	P001	TFT display driver + voice playback
	PL001	TFT display driver + BLE + voice playback
	PS001	TFT display driver + voice playback + recognition

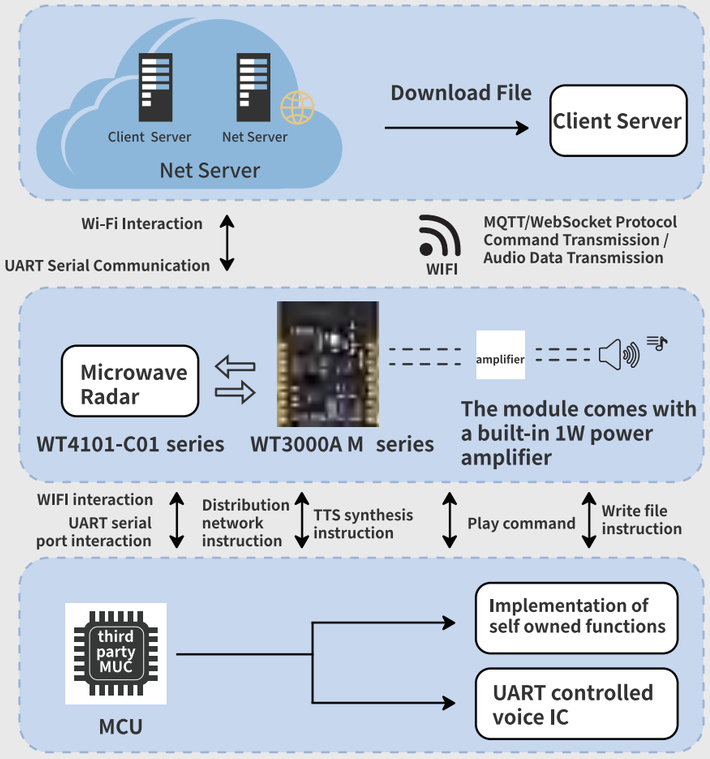
WT2605C Proximity Sensor Intelligent Prompt

Application of WT2605C with Proximity Sensing in Smart Prompt Devices

An intelligent prompter integrating online voice interaction synthesis and radar sensing technology, featuring the following core capabilities:
Real-Time Voice Synthesis:Supports TTS (Text-to-Speech) in multiple languages and dialects, allows background audio effects, and generates voice prompts dynamically based on real-time data.
Smart Profile Switching:
Enables ID switching via a mobile app, delivering personalized voice services for different scenarios—such as mall guidance, park navigation, and security alerts.
Radar Sensing:
Utilizes the WT4101 series radar proximity sensor, offering forward detection up to 0–13 meters with adjustable range. With an ultra-low operating current as low as 38μA, it supports long-term operation, making it ideal for battery-powered applications.
Time-Aware and Dynamic Response:
Automatically adjusts voice prompt content based on the current time, providing context-aware and time-specific responses.

Note: The WT3000AM series modules are composed of WT2605C integrated with Wi-Fi connectivity.

Smart Mall Guidance Prompter
Installed at floor entrances, the device detects approaching customers via radar and activates the "Guidance Agent." It delivers voice announcements in Mandarin, local dialects, or foreign languages, introducing the brands on that floor. During lunch hours, it adds information about the dining area; in the evening, it promotes ongoing discount offers.
Smart Park Navigation Prompter
Deployed at trail junctions in parks, the system triggers the "Navigation Agent" when visitors approach, providing voice guidance to nearby attractions. In the morning, it announces the opening of jogging paths; in the evening, it reminds visitors of closing time and safety instructions. It supports voice interaction in regional dialects, catering to elderly users.
Industrial Zone Security Prompter
Installed at the entrances of restricted or high-risk areas, this device activates the "Security Agent" upon detecting personnel via radar. It delivers real-time safety reminders (e.g., “Please wear a hard hat before entering the workshop”). At night, it automatically increases volume and can be linked with lighting systems to enhance visibility and alertness.



Electric Vehicle Low Speed Alert System (AVAS) Scheme

I(nvention Patent: ZL 202410460690.2 Audio Playback Method, Device, Equipment, and Medium for Automobiles)

The electric vehicle low-speed alert system (AVAS) can be implemented using either the WT2605 or WT2003H chipsets. It is capable of emitting a sound similar to engine acceleration and deceleration when the vehicle's speed is below a set value, such as 20 km/h. Additionally, when the vehicle is in reverse gear, the system will emit a reverse warning signal. This system helps improve the awareness of pedestrians towards approaching electric vehicles in noisy urban environments, reducing the risks faced by pedestrians, cyclists, and vulnerable groups.

Technical Advantages of WT2605/WT2003H

Serial Port Control of Sound Pitch and Speed:
The sound frequency, speed, and volume can be adjusted through UART commands, allowing the sound to vary according to the speed of the vehicle, providing high flexibility for customers.

Serial Port Speed Control for Sound Variation:
The MCU directly outputs speed data and the chip can seamlessly loop and play simulated car engine sound effects. This solution enables simple and fast development for the company.

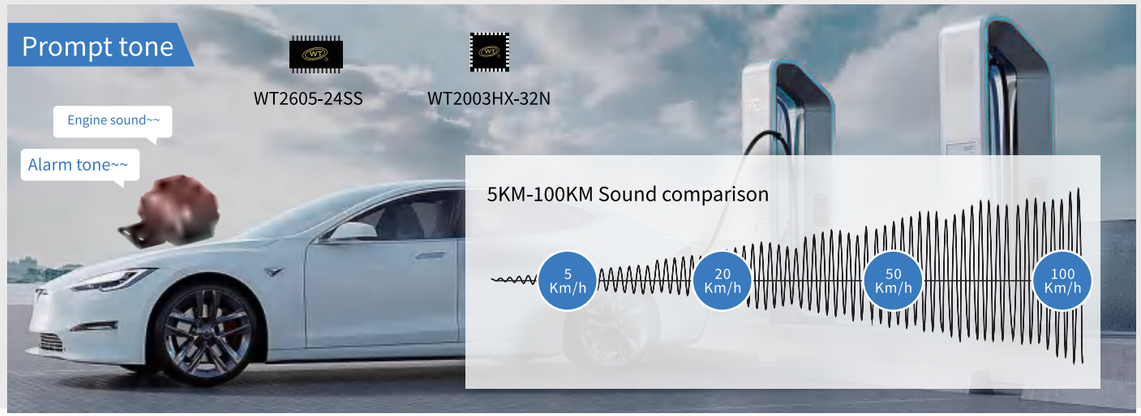
OTA Upgrade：
Through the MCU serial port, specific sections or all of the voice data can be replaced, allowing users to remotely update the engine sound effects in bulk for their terminal products. This reduces the bulk cost for customers and provides flexibility in product promotion.

Scheme used: WT2605 Series

Selection Reason: WT2605 is a high-quality MP3 voice codec Bluetooth chip, with a powerful DSP (Digital Signal Processor) core, which can be accessed and data exchanged with external devices through the UART interface, and it is easy to operate. The chip has built-in analog interfaces to provide users with high-quality audio input and output. It has rich peripheral interfaces and functions such as Bluetooth voice switching, seamless looping, frequency and speed conversion, and OTA upgrade.

Scheme used: WT2003H Serie

Selection Reason:WT2003H is a powerful and high-quality industrial-grade MP3 chip that features a high-performance 32-bit processor with a maximum frequency of up to 120MHz. It boasts low cost, low power consumption, high reliability, and strong versatility. It supports OTA serial upgrading and serial transmission speed commands. The chip automatically plays corresponding prompt sound at different speeds (with different frequencies and volumes by default).



Standard function (code)

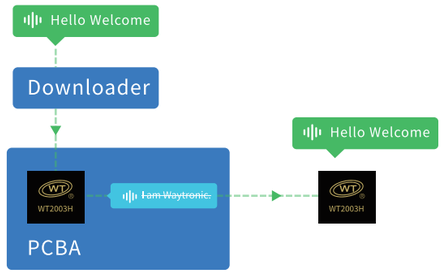
Standard Scheme for Voice and Firmware Update Downloads

1. What should be done when the product design is the same, but the voice content is different?
2. How to add personalized features to the product and stand out from similar products?
3. Want to update the microcontroller program, but have to add a USB to serial chip?
4. The product has bugs and I want to upgrade the MCU program, but don't know where to start.

On-board update

Reserved voice chip burning port on PCBA, voice files in the voice chip can be updated through our company's downloader. How to use it and what are the advantages?

1. During the research and development design phase and debugging phase, the downloader can be used to replace the voice files on the PCBA without the need to repurchase IC, greatly shortening the project cycle.
2. If the same product needs to be exported to different countries with different languages, using the traditional method of directly putting multiple language voices into the voice chip would significantly increase the cost. However, according to the above solution, PCBA can be stocked in advance, and when it needs to be shipped to different countries, only the language of that specific country needs to be downloaded to the PCBA, and then assembled and shipped directly.

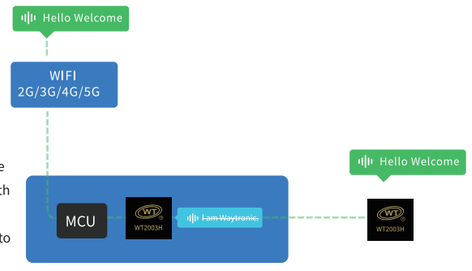


MCU replacement

Using an MCU, data can be written to the voice chip via a serial port, erasing the original voice and replacing it. This can be done through SPI, UART, I2C, and other interfaces.
How to use it and what are its advantages?

MCU can directly perform data read/write/erase operations with the voice IC

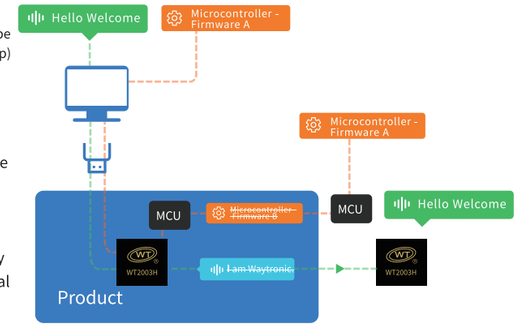
1. Flexible voice replacement: The product voice can be changed, making the product design more flexible. It allows updating the voice content during stock preparation, or enabling the product with the function of changing voice files.
2. Data communication: The MCU can communicate with the voice chip, using the chip as storage to save configuration data required by the MCU.
3. BIN file reading: The current voice content and configuration files of the chip can be read via the serial port.
4. WiFi module integration: Supports automatic voice content replacement through WiFi, enabling download of BIN files and voice files, as well as single-segment voice address updates.
5. WiFi module configuration: Supports configuration of baud rate, WiFi name, WiFi password, network connection (MQTT, HTTP), packet length, and allows querying of remaining chip capacity.



PC update
(voice + customer MCU firmware update)

If a USB interface is reserved on the product, it can be connected to a computer via the USB interface. The computer will present a simulated U disk, which can be used to replace the required speech files into the simulated U disk (i.e. voice chip) or replace the MCU program files into the simulated U disk, thereby upgrading the MCU program in the product.
How to use it and what are the advantages?

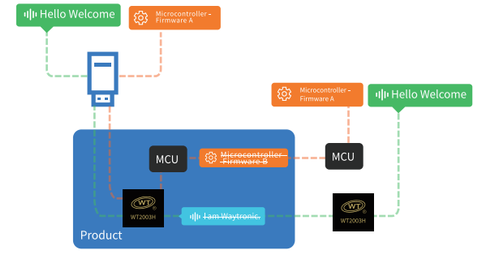
1. In the research and development design stage and debugging stage, direct replacement using a PC eliminates the need to purchase ICs again, greatly reducing the project cycle.
2. End users can use a PC to change the voice, enhancing the user experience and distinguishing it from competitors' products.
3. If the product requires an MCU program upgrade, it can be directly replaced using a PC, eliminating the need to purchase a USB-to-serial IC separately, saving product costs.



USB drive update
(voice + customer MCU firmware update)

USB interfaces can be reserved on the product, and the sound files that need to be replaced can be stored in a USB flash drive. The USB flash drive can be inserted into the product, and the MCU can use serial commands to replace the original sound files in the voice chip with the ones in the USB flash drive. The MCU can also send the program files of the microcontroller (MCU) in the USB flash drive to the voice chip through UART/SPI/IIC protocols, as per the MCU's requirements, for MCU program upgrades.
How to use and what are the advantages?

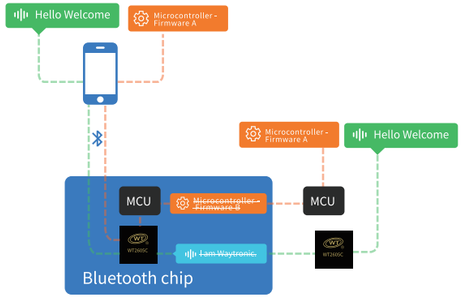
1. During the R&D and design stages, as well as the debugging stage, sound files can be directly replaced using a USB flash drive, eliminating the need to repurchase IC chips, greatly reducing project cycles.
2. End-users can use a USB flash drive to change the voice, enhancing the user experience and differentiating the product from competitors.
3. If the product needs to upgrade the MCU program, it can be done directly using a USB flash drive, without the need to purchase a dedicated USB to serial IC, saving product costs.



Bluetooth replacement
(voice + customer MCU firmware update)

The WT2605C can be connected to a mobile phone via Bluetooth, allowing for the transfer of voice files from the phone to the WT2605 chip. It can also receive program files from the MCU through Bluetooth, using protocols such as UART/SPI/IIC, and send them to the MCU for program upgrading.
How to use it and what are the advantages?

1. It allows for voice replacement in the product, which adds a significant feature to the product, whether it is during stocking or for end-user operation.
2. When the MCU needs to upgrade the program, the WT2605 can directly send the program file to the WT2605 through Bluetooth, and then upgrade the MCU program through the serial port.



Top 10 Application Solutions for Electronic Locks

Waytronic’ s 10 Empowering Solutions for Electronic Locks

The smart lock market competition is fierce, with many players entering.
Customer engineers are eager for innovation and cost reduction, requiring
voice solutions that are powerful, distinctive, and easy for secondary
development. Shenzhen Waytronic’ s 10 targeted electronic lock solutions
fully meet these needs.

Cost Reduction & Profit Increase

The expansion chip costs only 0.4–0.8 RMB, integrating infrared distance measurement to save a 4–5 RMB ranging module; it also includes 10 I/Os, a hardware serial port, and 8–16M flash, directly helping customers reduce costs and increase profits.

Faster Time to Market

The solution simplifies development by removing low-level development processes, helping customers shorten project cycles and speed up product launch.

Win-Win Partnership

When customers adopt our solutions, we can establish deep cooperation, provide better services, and achieve long-term mutual success.

Empowering Customers: Unlocking Multi-Dimensional Core Functions

Back Panel Main Control

Supports multi-capacity voice control and basic playback, with simple and stable circuits, built-in font library and data storage; supports MCU serial port updates and voice broadcasting, external flash expansion for multiple languages without changing solutions. It can replace the back panel MCU +doorbell + voice playback.

Front Panel Standard Guarantee

Front panel standard voice chip: Verified through long-term mass production, reliable quality; rich series covering different sound quality and capacities to meet diverse needs.

IO Expansion

17 I/O port independent control: Can save 1+2 driver chips, only increase about 0.1 packaging cost, reducing cost and size; 4 PWM outputs: support serial control of high/low frequency and duty cycle, can be used for RGB light control; one-wire serial control requires minimal program modification (only 2–3 bytes to control 10), original voice playback function unchanged.

TFT display

Smooth 60 frame screen push, supporting SPI/QSPI screen drive; Serial port control display graphics and emoticons, overlay graphics, offline program and UI; professional PC tool simplifies menu, only UI is needed to improve efficiency.

Voice Chip Electronic Lock Solution

Solution chip	Model	Peer Solutions	Advantages	Advantages & Benefits	Supporting solutions
Doorbell	WTN6006 WTN6020	Low Price	The product is stable, simple and easy to use	Simple Function, Easy Control, Small Capacity	Back panel doorbell function
Voice Broadcast	WTN6096/170-8S WT588F02/08-8S WTV380/890-8S	Poor Chip Series Compatibility	The product has been verified by the industry for a long time, is stable and reliable, with a wide capacity and seamless switching.	Supports Multi-Capacity Voice Control and Basic Playback, Simple and Stable Circuit, Easy to Use.	Front panel voice playback
MCU Update	WT588F02/08-8S WTV380\890-8S	Poor Chip Series Compatibility Cannot Update	Product stability, supports MCU serial port OTA and single file updates, fast iteration	Supports Multi-Capacity Voice Control and Basic Playback, Simple and Stable Circuit, and Supports MCU Serial Port Updates for Voice and Program.	Front panel voice playback
Voice Broadcast + Mixing	WT2003HX-16S	No Similar Solution	Support MCU serial port OTA, single file update, fast iteration, and external audio input	Supports multi-capacity voice control, basic playback, and streaming playback; simple circuit, easy to use, stable, and high sound quality; supports mixed playback of internal and external chip audio, as well as MCU serial port updates for voice and program.	Front panel voice playback MCU data stream decoding
Voice + LED Expansion	WTV380\890-32N	Requires Voice Chip + Driver Chip, High Development Workload, Long Development Cycle	Expand the selection space of MCU, adapt to Bluetooth and resource limited MCU; Expanding Flash to support multiple languages does not require changing the solution.	Supports multi-capacity voice control, basic playback; simple circuit, easy to use and stable; supports MCU serial port updates, voice broadcast + 13 LED drivers (IIC single-wire serial port); expandable flash for multiple languages, no need to change solution.	Front board, MCU has limited IO resources
Front Panel Voice LED Driving Function Infrared Distance Measurement Font Library Storage	WTV380\890-32N Expansion+flash	Requires Voice Chip + Driver Chip + Occupies MCU Chip Memory, High Development Workload, Long Development Cycle	Expand the selection space of MCU, adapt to Bluetooth chips and resource limited MCUs; Expanding Flash to support multiple languages without the need to switch chip solutions.	Supports multi-capacity voice control, basic playback; simple, stable, and easy-to-use circuit; with font library and data storage; supports MCU serial port updates, voice broadcast + 13 LED drivers (IIC, single-wire serial port); expandable flash for multiple languages, no need to change solution.	Front board, MCU has limited IO resources, Bluetooth main control
Back Panel Main Control	WTV380\890-32N Expansion+flash	MCU + Doorbell Chip + Front Panel Voice Chip, High Development Workload, Long Development Cycle	Save MCU and doorbell chip on the back panel, with stable universal functions; Expanding Flash to support multiple languages without the need for chip replacement solution	Supports multi-capacity voice control, basic playback; simple and stable circuit; with font library and data storage; supports MCU serial port updates, voice broadcast, etc.; expandable flash for multiple languages, no need to change solution.	Replace the back panel MCU+doorbell+voice playback
TFTDisplay	WT2606B6-40N WT2606B16-40N	High Development Workload, Long Cycle, High Overall Price for Large-Capacity Products	The customer video menu is simple, and our PC software directly compresses it. After adjustment, we can develop it to improve efficiency.	Smooth 60 frame screen push, supporting SPI/QSPI screen drive; Serial port control display graphics and emoticons, overlay graphics, offline program updates and UI; professional PC tool simplified menu, only UI is needed to improve efficiency.	Smart screen, display interaction with company’ s
AI offline online interact on	WT2606Ax	Espressif Solution Uses XiaoZhi Intelligent Module, High Development Workload, Long Development Cycle	New products bring Infinite space for product innovation	Recognition entries support customization, streaming transmission Number of entries: 20–300 Supports voice playback Supports voice interruption	Front panel display interactive menu screen
Offline speech recognition	WTK6900P4-8S WTK6900HAx-24s WTK6900HCx-24s	Single product series	Quickly achieve intelligent iteration of products, with a rich product line for customers to choose according to their needs	Recognition of entries supports customization Number of entries: 20-300 Support voice playback	Front panel display interactive menu screen
Audio Stream Decoding	WTV380C-8S July Test Samples (Chips can be delivered on uly 30)	MCU Decoding Requires Additional Power, Large Voice Capacity, Poor Sound Quality	To solve the sound quality problem, the external flash capacity for multiple languages is large, reducing it by 4-8 times compared to the original.	Supports MP3 streaming playback, volume adjustment, and adjustable baud rate	Supporting solution with MCU decoding chip
Infrared Distance Measurement Module	WTU404	Low Price	Low Price	Infrared ranging support: 0.2-1M	Front panel sensor detection
Microwave Distance Measurement Module	WT4101A-C01 WT4101A-C04L WT4101A-C04	Low Price	Low Price	Microwave ranging support: 0.2-1.5M	Front panel sensor detection

Solutions

Blood Pressure Monitor Solution Application

Application Solution Introduction

OTA Voice Broadcast Chip

Chip Models
WT588F/WT2003H/WTV

Functions

1、User operation guide and reminders
2、Blood pressure value broadcast
3、OTA upgrade voice

Pain Points Solved

1、Incorrect operation leads to inaccurate blood pressure measurement, which can be solved by voice reminders.
2、Voice broadcasting of measurement values allows users to directly understand the results, solving issues such as unrecognizable or unclear readings.

Advantages

1、Stable quality (5-year warranty, applied in high-speed rail, subways, medical and industrial equipment, etc.)
2、Customers can create their own voice content and update it into the IC for convenient and fast sample debugging and voice confidentiality
3、16-bit decoding, clearer and more vivid sound
4、OTA upgrades solve stocking issues for different languages

Voice + LED Display

Chip Models
WT588F02KD-40N

Functions

1、User operation guide and reminders
2、Blood pressure value broadcast
3、128+ LED drivers

Pain Points Solved

1、User operation guide and reminders
2、Blood pressure value broadcast
3、128+ LED drivers

Advantages

1、Integrated, no driver IC required
2、Digital light-up control, simple programming

Voice + BLE + LCD

Chip Models

Functions

1、Voice broadcast
2、Supports up to 4*24 LCD display
3、BLE transparent transmission of device name, blood pressure value, cuff pressure, etc.

Pain Points Solved

1、Three-in-one solution, eliminating the need for LCD driver, BLE module, and voice chip, saving development time

Advantages

1、Three-in-one, simple design, higher cost performance
2、Simple LCD control protocol, easy development
3、BLE protocol can be developed by the user, certification support provided

Voice + BLE + LED Display

Chip Models
WT2801A4-32N

Functions

1、Voice broadcast
2、100 LED drivers
3、BLE transparent transmission of device name, blood pressure values, cuff pressure, time, battery level

Pain Points Solved

1、Three-in-one solution, eliminating LED driver and BLE module, saving development time

Advantages

1、Three-in-one, no driver IC needed, higher cost performance
2、Simple programming for digital light-up

Voice + LCD Display

Chip Models
WT2000T4-32N/52N

Functions

1、User operation guide
2、Blood pressure value broadcast
3、96–186 segment LCD

Pain Points Solved

1、Voice solves operational issues, reminders, broadcast, etc.
2、LCD display

Advantages

1、16-bit decoding, clearer and more vivid sound
2、Voice + LCD display control is simple and convenient to program

AI交互

Chip Models
WT3000A Module (WT2606A)

Functions

1、Local services: wake-up / VAD / online & offline voice recognition / playback / audio uplink & downlink / network protocol / serial communication / WiFi output / WiFi 2.4G
2、Cloud services: voice recognition / large model understanding / intent command extraction / knowledge base Q&A / business customization

Pain Points Solved

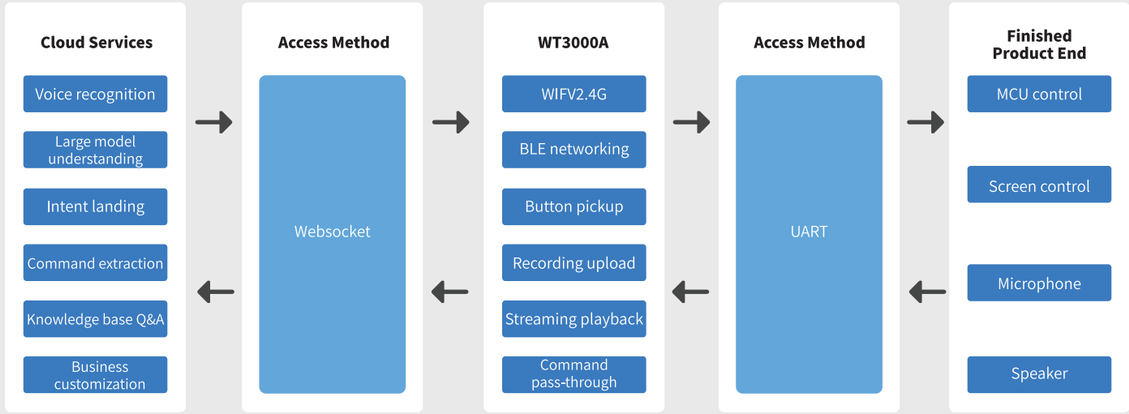
New features (including above broadcast chip solution functions):
1、AI conversational health inquiry, smart health assistant
2、Real-time data interpretation and broadcast

Advantages

1、AI interaction gives products a new mission, increasing added value

Product End-Side / Cloud Service Integrated Flow

Integrates voice recognition, voice understanding, voice synthesis, command extraction, and device control technologies. Supports custom commands, Q&A knowledge base, and acts as a customer service advisor, effectively solving after-sales problems and creating enterprise-level knowledge bases.



4G Cat.1 Voice Module as AI Interaction Support

Wireless voice module integrating Cat.1, voice chip, storage, and amplifier; supports wake-up, AI voice control, audio decoding & playback, playback interruption, offline recognition, volume adjustment, etc.

AI Engine instantly interprets data and gives vivid meaning to raw numbers

Immediately after measurement, the AI engine accurately interprets each test result and provides health tips, comprehensively assisting health management and providing attentive care at every moment.

Guided Response:

Okay, your age, gender, and weight information have been received. Now please remain quiet, relax your body, keep your arm straight and level with your heart, wrap the cuff smoothly around your upper arm, then press the measurement button or simply say "Start measurement." We can begin measuring your blood pressure right away. Please try not to move your arm during the measurement to ensure more accurate results.

Data Explanation:

The measurement is complete. Your systolic pressure is XX mmHg, diastolic pressure is XX mmHg, and heart rate is XX beats/minute. Your blood pressure is within the normal range. Considering your age of 30 and weight of 70 kg, it is recommended to maintain regular exercise and a balanced diet to better sustain your health. If you experience any discomfort later, don' t forget to measure again or visit a hospital for further check-ups.

Solutions

Module Product Overview

Voice Module Product List

	Module Product Overview	Voice Module Product List
Playback & Recording Modules	 WT2003HB01	1. Supports standard asynchronous serial communication (UART) 2. Supports SPI-Flash and USB disk as storage 3. Functions include file index playback, interrupt playback, single track loop, all tracks loop, random playback, etc. 4. Simulated USB disk function, free voice replacement
	 WT3000TxM01	1. Supports Chinese & English TTS (Text-to-Speech) 2. Built-in fixed voice resources 3. Standard UART & SPI communication 4. Integrated 2W amplifier, directly drives 8 Ω/2W speaker
	 WT2003HM03	1. Supports standard asynchronous serial communication (UART) 2. Supports SPI-Flash, TF card, USB disk storage 3. File index playback, interrupt, single/all track loop, random playback 4. Simulated USB disk, free voice replacement
	 WT2003HM02	1. Supports UART communication 2. Supports TF card and USB disk storage 3. File index playback, interrupt, single/all track loop, random playback 4. Simulated USB disk, free voice replacement
	 WT2003HB03	1. Supports UART communication 2. Supports SPI-Flash, TF card, USB disk storage 3. File index playback, interrupt, single/all track loop, random playback 4. Simulated USB disk, free voice replacement
	 WT2003HM01	1. Supports UART communication 2. Supports SPI-Flash and USB disk storage 3. File index playback, interrupt, single/all track loop, random playback 4. Simulated USB disk, free voice replacement
	 WT2003HM04	1. UART control: supports file index playback, interrupt, loop, random playback, etc. 2. Supports one-wire/two-wire serial control: commands for play, stop, loop, volume control 3. Supports key control: up to 10 keys, 15 trigger modes configurable 4. Built-in 900 seconds voice capacity 5. Supports SPI-Flash, SD card, USB disk storage

	Module Product Overview	Voice Module Product List
Noise reduction	 WT2605A-B01	1. Supports AI noise reduction 2. Supports WAV/MP3 high-quality audio playback 3. External TF card (max 128GB) and USB disk (max 32GB) 4. Standard UART communication with configurable baud rate 5. Built-in 2W amplifier, directly drives 8Ω/2W speaker
Sensor Modules	 WT4101A-C01	1. Detection range: 0.5–2m (forward), TX power: 3dBm 2. Operating voltage: 2.8V–3.5V 3. Current: 880μA (default), 9.6mA (high-power mode) 4. Built-in 50Hz/60Hz power frequency interference filter 5. Built-in WiFi & wireless interference rejection 6. Integrated light detection (sensitivity adjustable) 7. Module size: 18×12×1.6mm 8. Operating temp: –20~85°C
	 WT4101A-C04	1. Detection range: 1–13m (forward) 2. Ceiling mounted 3m → detection distance 3–5m 3. TX power: 3dBm 4. Frequency: 5.725–5.875GHz 5. Voltage: 5–12V 6. Current: 880μA (default), 9.6mA (high-power) 7. Built-in 50Hz/60Hz filter 8. WiFi interference rejection 9. Light detection adjustable
	 WT4101A-C04L	1. Detection range: 1–8m 2. TX power: 3dBm 3. Frequency: 5.725–5.875GHz 4. Voltage: 5–12V 5. Current: min 42μA 6.Integrated 50Hz/60Hz mains interference filtering algorithm 7.Integrated WiFi and other wireless communication interference suppression algorithms 8.Integrated light-sensing function with adjustable sensitivity
	 Infrared ranging module (WTU201F2 B004)	1. Long-distance detection 2. Voltage: 3–5V, low power 3. Strong anti-interference 4. Operating current: 35μA 5. Standby current: 16μA 3.3V, 70cm detection, 1s cycle 6. Range: 5–90cm 7. Factory calibrated 8. Distance learning function 9. Interfaces: UART or I/O
High quality recording module	 WT2605B03	1. Supports Bluetooth audio mode + MP3 playback mode 2. Supports WAV/MP3 playback 3. External TF (max 128GB) & USB disk (max 32GB) 4. UART 9600 baud 5. Built-in 1W amplifier (8Ω/1W speaker) **Bluetooth BQB certified, QDID:215196**

*支持各类标准应用定制方案PCBA出货

Voice Module Product List

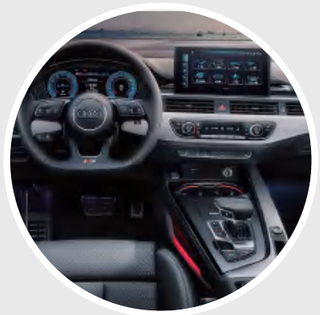
	Module Product Overview	Voice Module Product List
High quality recording module	 WT2801B01	1. Supports BLE Bluetooth + MP3 playback 2. WAV/MP3 playback 3. TF (max 128GB) & USB (max 32GB) 4. UART 115200 baud 5. Built-in 2W amplifier (8Ω/2W)
	 WT2605B05	1. Supports Bluetooth audio + BLE data + MP3 playback 2. WAV/MP3 playback 3. TF (max 32GB) & USB (max 32GB) 4. UART AT commands, baud 115200 5. Built-in 1W amplifier (8Ω/1W)
	 WT2605B02	1. Supports TF/USB recording 2. WAV/MP3 playback 3. TF (max 32GB) & USB (max 32GB) 4. UART 9600 baud 5. Built-in 1W amplifier (8Ω/1W)
Voice Recognition Modules	 WTK6900P-M02	1. I/O input/output customization 2. Recognition rate: 85% (quiet) 3. Distance: 0.5–2m 4. 20 commands 5. Power: 10–13mA 6. Low noise immunity 7. Languages: Chinese, English 8. Voltage: 2.4–5.0V
	 WTK6900FC-M02	1. Supports customization of IO port input/output functions 2. Recognition rate in quiet environments: 98% 3. Recognition distance: 5–8 meters 4. Command words: 300 5. Power consumption: 45–55mA 6. Strong anti-noise capability 7. Supported languages: Chinese / English / Japanese / Korean 8. UART serial communication 9. Operating voltage: 3.6V–5.5V
	 WTK6900HA-M02	1. Supports customization of IO port input/output functions 2. Recognition rate in quiet environments: 95% 3. Recognition distance: 1–3 meters 4. Command words: 300 5. Power consumption: 18–23mA 6. Medium anti-noise capability 7. Supported languages: Chinese, English 8. UART serial communication 9. Operating voltage: 2.2V–5.5V
	 WTK6900HC-M02	1. Supports customization of IO port input/output functions 2. Recognition rate in quiet environments: 95% 3. Recognition distance: 3–5 meters 4. Command words: 300 5. Power consumption: 18–25mA 6. Strong anti-noise capability 7. Supported languages: Chinese, English 8. UART serial communication 9. Operating voltage: 3.3V–5.5V"

	Module Product Overview	Voice Module Product List
voice recognition module	 WTK6900H-M01	1.Simple interfaces: microphone/speaker/5V power supply and UART interface 2.Easy testing: plug in microphone and speaker, power supply directly to use 3.Supported recognition entries: 50–100 4.Built-in noise reduction algorithm, high recognition rate, accurate recognition 5.Supports delivery in stamp hole or pin header package 6.Crying sound recognition 7.Detection of baby crying (0–3 years old) 8.Outputs 300ms signal to trigger device upon detection of crying 9.Detection distance: 0–5m
Voice Greeting Card Module	 soundsticker	1.Voice Duration: 40s and 170s versions available 2.Working Time: Continuous playback for 30 minutes 3.Output Power: 8Ω 0.5W 4.Trigger Options: Light sensor (expandable to button, magnetic sensor, and other trigger methods) 5.Voice Update Method: Supports batch burning with a programmer or single replacement with a simple downloader 6.Customization: Can be tailored to customer requirements
	 WT2003H USB Card	1.Voice Duration: 300s (expandable with 128M flash up to 3 hours) 2.Working Time: 30 minutes with button battery 3.Output Power: 8Ω 0.5W 4.Trigger Options: Light sensor, reed switch, button (expandable to Hall sensor, pressure sensor, etc.) 5.Customization: Can be tailored to customer requirements
	 WT2003H USB Card	1.Voice Duration: 300s (expandable with 128M flash up to 3 hours) 2.Working Time: 2 hours with lithium battery (with charging function) 3.Output Power: 8Ω 0.5W 4.Trigger Options: Light sensor, reed switch, button (expandable to Hall sensor, pressure sensor, etc.) 5.Customization: Can be tailored to customer requirements
	 WT2605A Bluetooth Recording	1.Voice Duration: 180 seconds (expandable with 128M flash; up to 3 hours) 2.Button Cell Version Working Time: 30 minutes 3.Output Power: 8R2W 4.Trigger Mode: Light sensor, button (expandable to reed switch, Hall sensor, pressure sensor, etc.) 5.Voice Update Method: No app required, phone recording can be directly transferred to the greeting card module (no operating system limitation) 6.Customizable: Can be customized according to customer requirements
	 WT2605A Bluetooth Recording	1.Voice Duration: 180 seconds (expandable 128M-flash; 3 hours) 2.Lithium Battery Version Working Time: 2 hours (with charging function) 3.Output Power: 8R2W 4.Trigger Mode: Light sensor, button (expandable reed switch, Hall sensor, pressure sensor, etc.) 5.Voice Update Method: No app required, phone recording can be directly transferred to the greeting card module (no operating system limitation) 6.Customizable: Can be customized according to customer requirements

Solutions

Automotive Electronic Voice Interaction Solution (High-End Voice Chip with Amplifier)

The solution uses the high-quality voice chip WT2605-24SS, a 32-bit high-performance CPU with a clock frequency of up to 120MHz. It is equipped with a built-in 0.5W power amplifier and can switch between DAC and PWM audio outputs (PWM can directly drive 8R 0.5W speakers). It utilizes standard UART communication for flexible control and supports low power consumption mode (can maintain below 5uA in deep sleep). The solution also supports external storage devices such as Flash, SD cards, and USB drives.

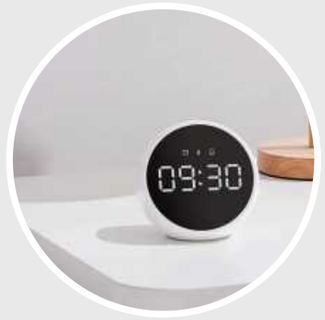


Function features

1. Support high-quality and high-fidelity sound.
2. Support OTA upgrade and USB interface upgrade.
3. Easy control, allowing customers to replace the voice themselves.

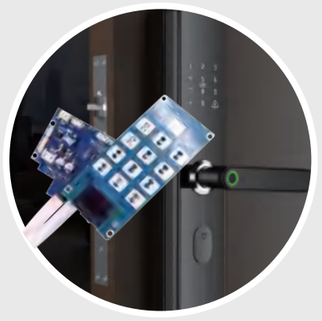
Intelligent Music Alarm Clock Solution

The solution uses the WT588F02KD-40N digital tube driving voice chip, which leverages the built-in clock function of the WT588F02KD/WT2605C (with a clock error of 1s/day). In sleep mode, the power consumption is only 10uA. The WT588F02KD/WT2605C can drive digital tube displays and features temperature detection. It can also communicate with a mobile app for time calibration, alarm clock settings, and countdown settings.



Function features

1. The WT588F02KD alarm clock solution can automatically calculate leap years and leap months.
2. With the LED turned off, the standby power consumption is less than 10uA, with a timing error of 1 second per day.
3. It can support built-in 200 seconds of voice and external Flash (4M~128Mbit) for a maximum of 3.5 hours.
4. It can drive up to 8 digits on the display, with the ability to set the brightness of each digit (up to 8 levels).
5. It can support up to 20 sets of alarms (customizable and modifiable).
6. It allows for reading the current time, setting the time, and querying alarm settings, among other functions.
7. There are 256 bytes of open space available for the MCU to set and read.



Smart Lock Backplate Solution

This solution uses WTV380/WTV890 (QFN32) voice chips, replacing the traditional MCU on the smart lock backplate. It integrates motor drive, lock status reporting, Hall detection, button detection, IR proximity detection, WiFi data transmission, and voice playback. WTV380/890 supports ultra-low power with typical sleep consumption of 30uA+ and deep sleep under 5uA.

Features

1 DMA serial port communication
2.Motor driving capability
3.1 AD overcurrent detection, 2 battery AD detections
4.Hall detection, button detection, IR proximity detection
5.WiFi/door camera data forwarding
6.Built-in voice chip (380S/890S)
Low Power Consumption: Standard sleep mode consumes around 30uA+, while deep sleep mode is within 5uA.

TFT Display / Small Appliance Standard Screen Solution

This solution uses WTV, WT2605, WT2801, WT2000T series chips, supporting voice playback + TFT screen drive. With built-in 4M/8M storage, it can store images and voice files, suitable for home appliances with voice prompts and display screens. WT2605/WT2801 also support Bluetooth for smart applications.

Features

1.Supports I^2C / UART communication
2.Supports MP3, WAV, and compressed voice playback
3.TFT, LED, LCD display driving
4.BLE and classic Bluetooth functions

Electric toothbrush solution

Bluetooth version WT2605C, MP3 version WT2003H, voice version WTV890. This solution can be implemented using different chips according to the customer's requirements, including voice playback, music playback, electric motor drive control, battery level detection, charging detection, and LED light control. Alternatively, customers can use the WT series chip with a low-cost 8-pin MCU to achieve the entire solution by simply programming basic logic and interaction functions.

Function features

1. The WT series chips are built-in with standard motor drive mode and battery level detection.
2. The voice quality supports high resolution and supports 8K-128Kbps bit rate.
3. The MCU control is simple, only requiring interaction functionality, reducing development time.
4. Customers can replace the voice by themselves and support OTA upgrades.

Sewing Machine Voice Interaction Solution (Industrial Grade)

The program adopts the WT2605-16S industrial-grade voice chip, which allows for the free copying of voice files (allowing for the replacement of built-in voices). It is capable of supporting Bluetooth mode for playing Bluetooth music. This program supports MIC recording with high audio quality and no background noise, as well as Bluetooth recording, allowing for the recording of music files through Bluetooth. It also supports infrared remote control operation.

Function features

1. Large capacity, allowing users to conveniently store multiple languages.
2. Supports OTA upgrades, USB drive upgrades, and other various methods.
3. High sound quality, supports 16K-320Kbps bit rates.
4. Supports users and allows manufacturers to independently replace audio sources.

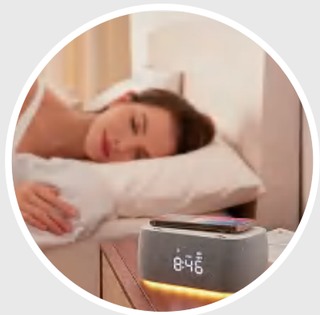
Solutions

NFC Children's Early Education Story Machine Solution

The solution adopts high-quality voice chip with a simple circuit requiring only two capacitors. It supports external NFC chip/TF card/USB and can play MP3 audio files in formats ranging from 32k to 320kbps. It offers great cost-effectiveness and supports voice encryption to prevent voice "cloning" and theft.

Function features

1. The overall BOM (Bill of Materials) for the product is simple, requiring only a few resistors and capacitors.
2. The product uses a standard NFC chip interface, allowing for the option to choose different NFC chips.
3. The development cycle is short, allowing customers to quickly develop their products.
4. The chip supports built-in storage as well as external flash memory, TF cards, and other storage methods.



Sleeping Device Voice Solution (High-Quality Seamless Looping)

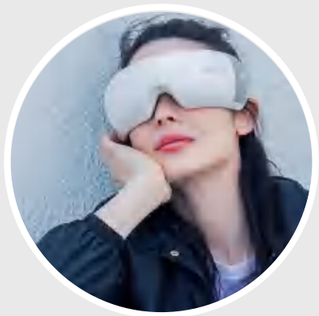
The solution adopts the high-quality audio chip WT2003H-16S, which can integrate 300 seconds of voice length, high-fidelity audio, and 16-bit DAC audio output. It supports one-wire, two-wire, and UART serial communication, providing flexible control and quick verification with the PC. This solution is designed to help engineers quickly implement their projects. With the implementation of this solution, the sleep aid device can achieve seamless and natural sound, giving users a feeling of being immersed in nature.

Function features

1. The WT2003HX chip supports standard IO peripherals for buttons and LED driving.
2. The chip has built-in voltage detection, eliminating the need for an external voltage detection circuit.
3. Customized functions can be easily modified using a simple 8-pin MCU for UI interaction.
4. Changing the audio source is simple, as it only requires the use of the Waytronic editing interface.

AI Massage Device Intelligent Voice Solution

The solution adopts the WTK6900H-24SS single chip, which features high cost-effectiveness and can directly reduce the overall BOM cost and shorten the project development cycle. The solution supports standard BLE transparent transmission and voice recognition functions, with a recognition distance of 3.3 to 5 meters and a recognition rate of over 90%. It also supports control by mini programs.

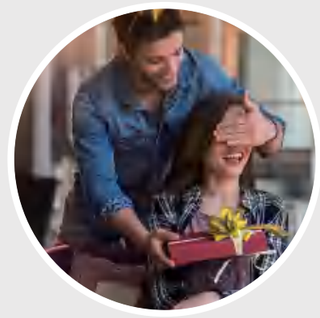


Function features

1、The chip integrates massage functions, with standard recognition commands enabling convenient voice control.
2、Supports local voice playback, eliminating the need for an additional voice chip.
3、Supports Bluetooth music playback and hands-free calling.
4、Integrates BLE audio data communication, allowing control via mobile app.

Couples DIY Holiday Gift Box Voice Solution

The solution uses the WT2605 music module, which supports Bluetooth connection for playing Bluetooth music. It also supports recording through MIC/Bluetooth, with high audio quality and no background noise. Additionally, users can copy their favorite voice files to the module via USB to achieve voice DIY, providing users with high-quality voice DIY gifts.



Function features

1. No need for physical contact to change internal sounds, allowing for easy replacement of greetings without unpacking.
2. Can be used with mobile applications such as WeChat and DingTalk for updating familial greetings through voice messaging.
3. High-quality sound reproduction ensures that the playback recording matches the audio output of the mobile device.
4. Supports USB bulk voice replacement for convenient shipment by manufacturers.

Smart doorbell

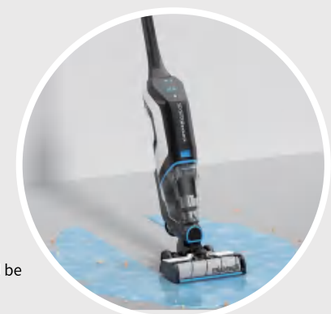
Both WTN6040F and WT588F02B chips can be used in smart doorbells, with standard programs supporting the standard EV1527 decoding protocol (can be customized and modified according to customer requirements) and can be synchronized with wireless remote controllers. WTN6040F has 31 polyphonic tones, while WT588F02B has 58 polyphonic melodies.

Function features

1. 2.4~5.5V; standby power consumption less than 5ua
2. PWM output directly drives 8R0.5W speaker, supports DAC output connected to power amplifier chip
3. Supports seamless linking function
4. Standard program includes 58 chord melodies (can be changed according to customer's requirements)
5. Supports customers to create their own sounds using a PC application and download them to the chip
6. One-wire serial communication/ keypad/ UART communication modes
7. EV1527 encoding format (can also be customized according to customer's protocol)
8. Features power-down memory function, adjustable volume, and learning remote control code functions.

Sweeping machine/mopping machine

WT588F and WT2003H each have their own advantages.
1、WT2003H supports MP3 audio quality, providing better sound performance.
2、WT588F is simple and convenient to use, offering higher cost-effectiveness.
Both chips support repeated erasing and reprogramming. Voice programs can be created on our company’ s website and downloaded directly into the chips via a programmer. This enables rapid prototyping and helps shorten the development cycle.



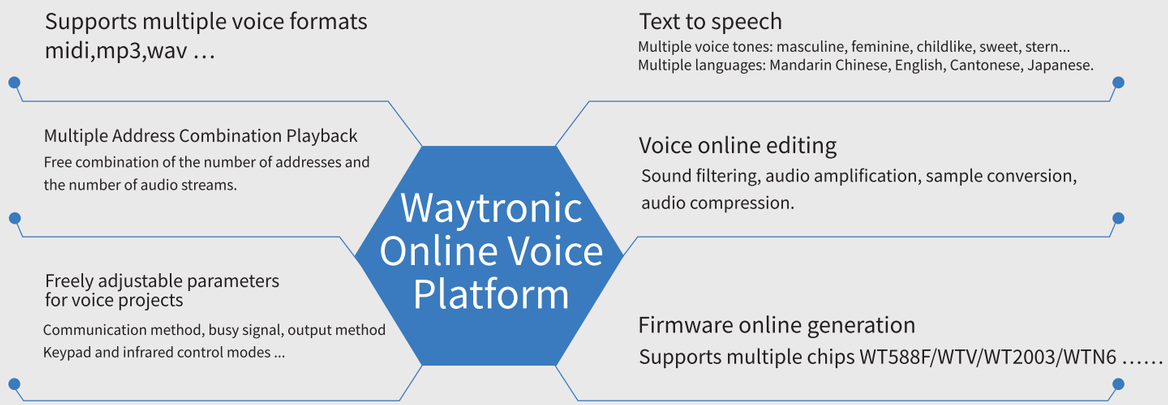
Function features

1. Operating voltage: 2.4~5.5V
2. 16-bit PWM/DAC output, capable of directly driving an 8R 0.5W speaker
3. Supports WAV files with a sampling rate of 6K~32KHz
4. Customers can change the internal voice content of the chip through an MCU or dedicated downloader
5. Supports one-wire serial interface and two-wire serial interface (UART and IIC communication will be available soon)
6. Supports over 1000 address segments
7. Equipped with hardware SPI interface, UART interface, built-in comparator, and other interfaces. Customizable for various functions
8. The chip has a built-in 220KB Flash. For larger capacity, an external flash can be used
9. Both the chip's main control program and Flash data can be erased and rewritten.

Online platform

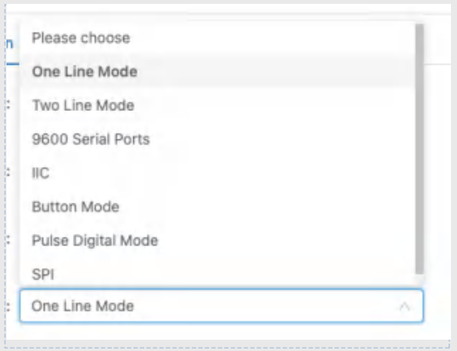
(Invention Patent: ZL 202410538130.4 - Method for Generating Audio Binary Files, Electronic Device, and Readable Storage Medium)

The Advantages of Waytronic Online Voice Platform: Platformized development process, quick and flexible development approach, extensive voice resource library, one-minute completion of voice editing and processing, one-click download and debugging, accelerating engineers' project development progress.



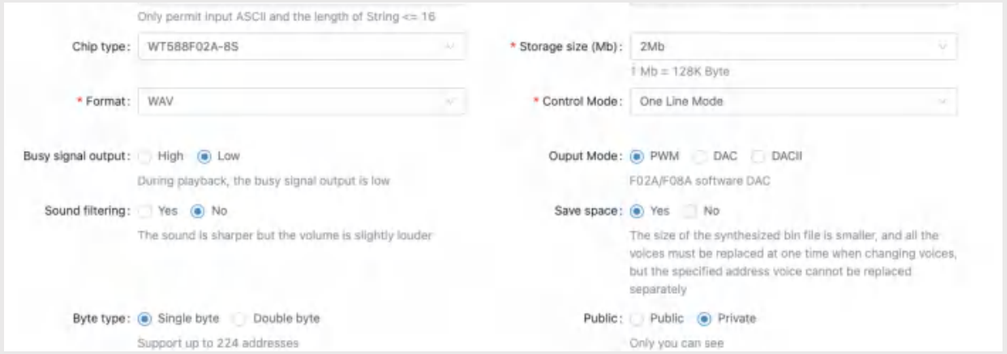
Waytronic Online Voice Platform：https://wt588f.waytronic.com:8443

1、Rich functional mode configuration and support for on-line, off-line, UART, SPI, and IIC control methods, catering to the development habits of more engineers.

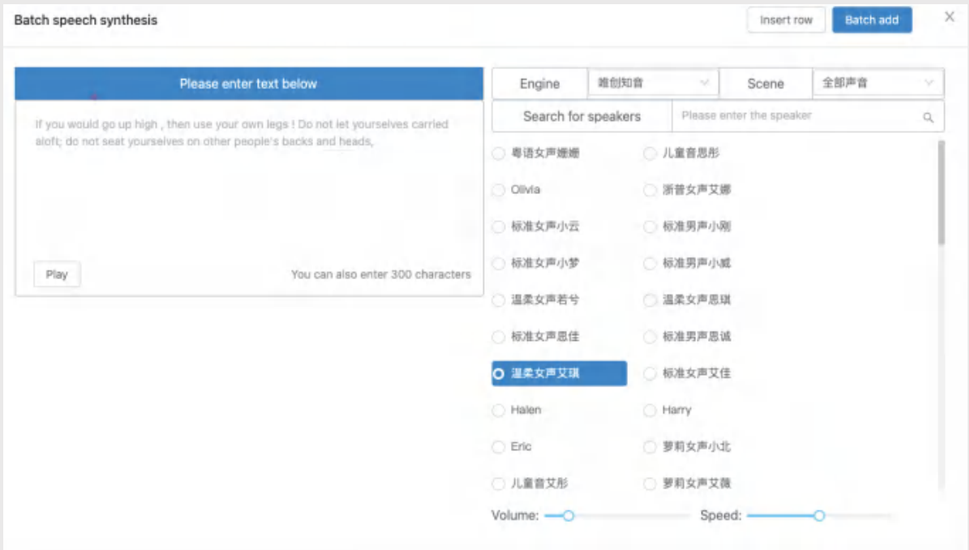


2.Professional audio filtering technology that attenuates the high-frequency range of speech, reducing sibilance and creating a soft and non-irritating sound effect.

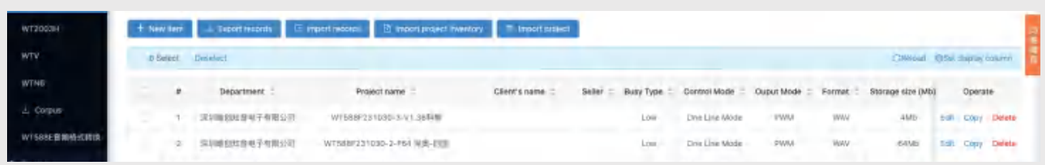
3、Massive and diverse MIDI library, supporting 5-8 chords, rich timbre, and beautiful sound expression.



4、TTS voice synthesis engine with multiple voice resource options, supporting multiple languages, including children's voices, announcer voices, and dialects.



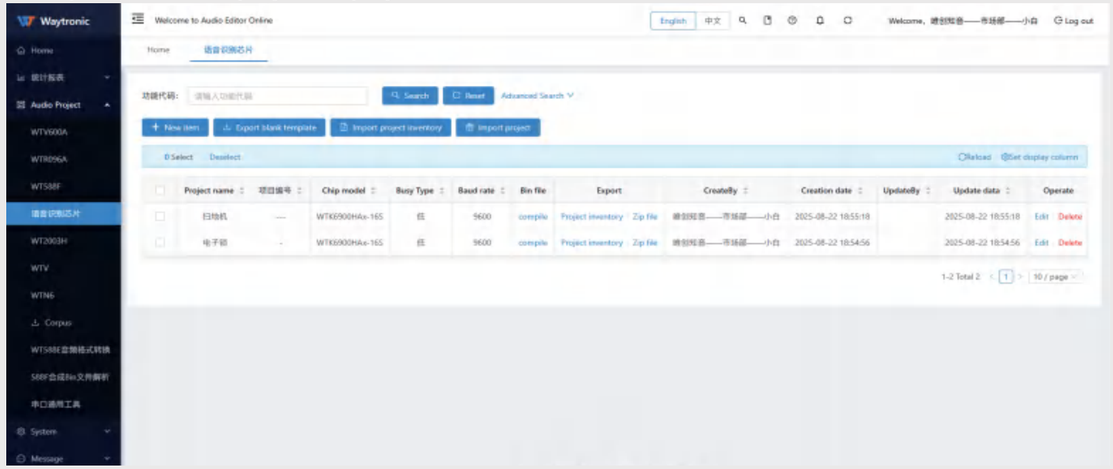
5、Project import and export functions, allowing developers to quickly complete the entire project development by simply adding data to an Excel sheet and including audio. This speeds up the development progress for engineers.



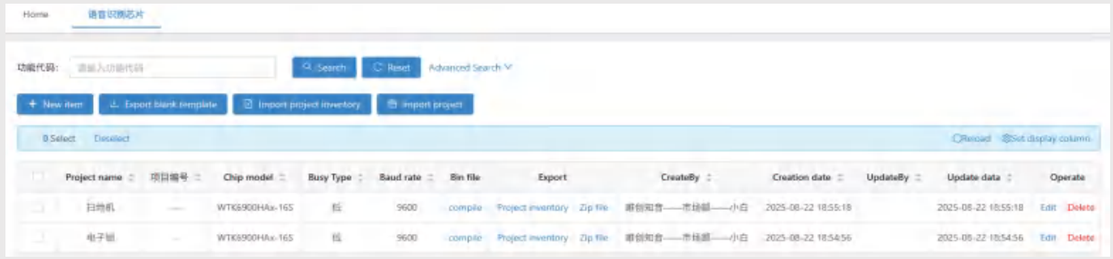
Online platform

(Invention Patent: ZL 202410538130.4 - Method for Generating Audio Binary Files, Electronic Device, and Readable Storage Medium)

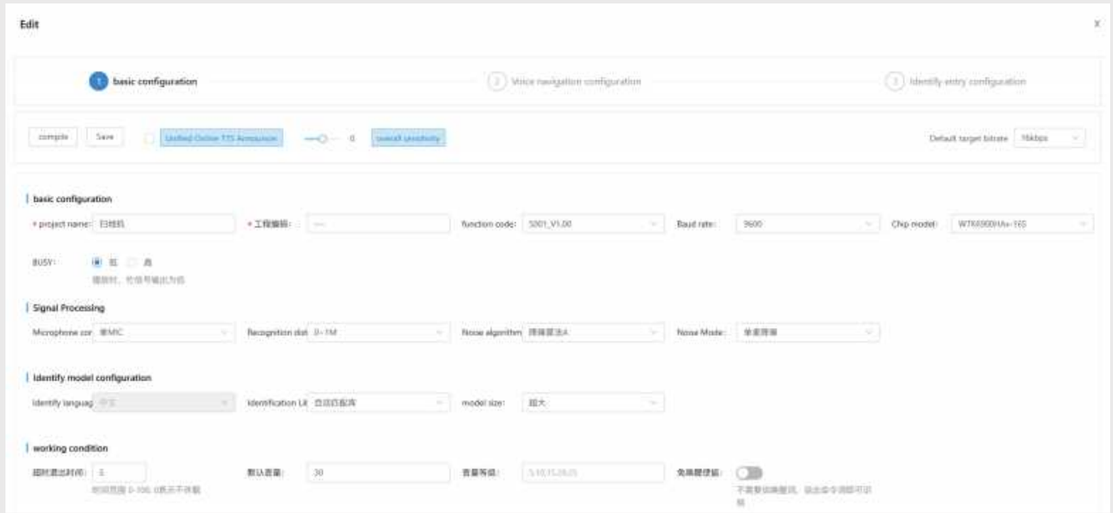
1、Chip selection and project display interface



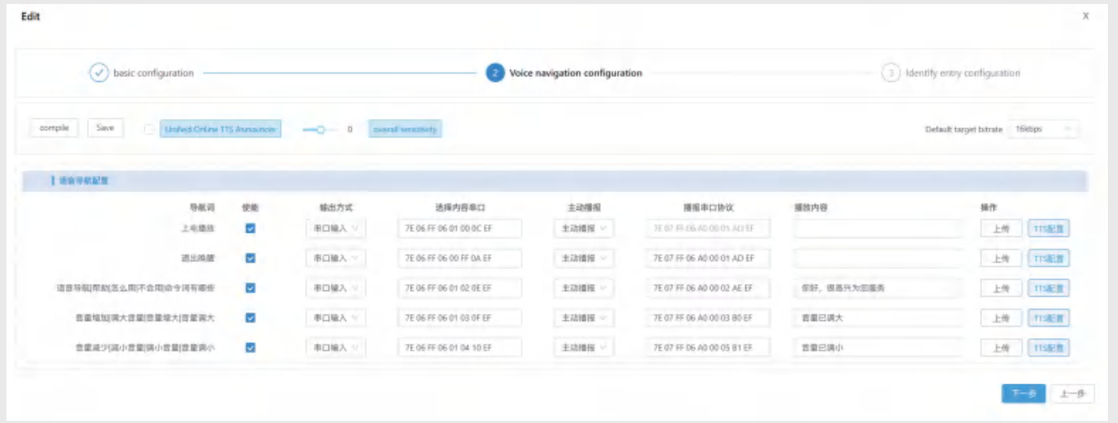
2、Convenient project management interface, supporting project editing, viewing, downloading, and work order export



3、Rich functional configuration, supporting function code selection, chip model selection, voice selection, and custom function configuration



4、General function configuration: customizable power-on playback, exit-from-wakeup playback, support for active playback, passive playback, and custom serial port data. Audio content support local upload and ultra-natural TTS synthesized speech



5、Supports custom keyword creation, sensitivity adjustment based on recognition performance, and custom response voice

Online platform

Complementary tools

Recognition Module Testing Tool

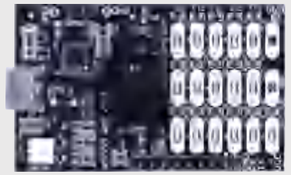
WTK6900FC Self - learning Module

- Support entering the learning mode via UART
- Support entering the leaning mode via MIC8m recognition range
- Support Chinese and English commands to recognize

Online Recognition Test Board

- Online speech recognition supports: 51 national languages, 23 domestic dialects with quick switching, operating voltage: 2.8\~5.5V
- Audio formats: WAV, OPUS, SPEEX, MP3, AAC, audio sampling rates: 8000 Hz, 16000 Hz
- Duration limit: speech data duration cannot exceed 60s
- Supports setting speech rate, pitch, and volume; supports setting voices for different scenarios and styles
- Only supports text input encoded in UTF-8

WTVXXX/WT2003H Series Programming & Testing Tools

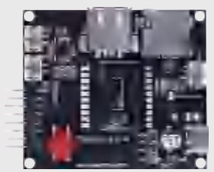


WTVXXX M06 V1.03

- B004, B014 DEMO test board
- IC communication
- Supports voice playback, seamless loop playback, combined playback, PWM output
- Supports infrared sensing, maximum sensing distance up to 120 cm, average power consumption less than 40 μA at 1 Hz frequency, INT pin outputs valid signal
- Supports control of 16 LEDs, supports RGB LED control (with breathing function), and BUSY pin output

WT2003HM16 Test Board

- Supports WT2003HA, WTV, WT6900H chip M-series module testing
- Supports USB and TF card functions
- Supports recording and ONEKEY button (for WT2003H M-series modules)
- Supports SP1, 1-wire, 2-wire, UART serial functions (requires matching WT2003H programming test board)



WT Writer Downloader V1.00

- **Function Overview:** WT Writer downloader is designed by Waytronic with virtual U-disk function. When connected to a PC, files can be copied by drag-and-drop. Supports downloading and updating specific voice data series, as well as downloader program self-upgrade and version readback.
- **Scope of Application:** WT Writer downloader applies to WT2003H series, WTV380/NTV890 series, WT3000T series, WTK6900 series chip voice bin replacement.

B-Series Bluetooth Test Board

- Operating voltage range: 2.8V–5.0V
- Supports WT2605B series module testing, supports TF card and USB storage
- Built-in USB-to-serial chip, directly pluggable into PC for debugging, convenient for engineers to verify quickly
- Built-in MIC and LINE IN interface

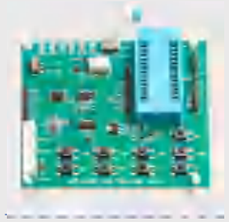
WTVXXX/WT588 Series Programming & Testing Tools

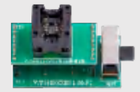
WTVXXX-VSB V1.02

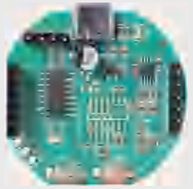
- Supports WTV series chip programming & testing via 1-wire, 2-wire, UART, P2C, SPI communication
- Default power-on: no playback, supports next-track button function, BUSY playback state indication
- Power status indication, works with WTW/WT2003H downloader for replacing WTV series voice
- Supports PWM output, PWM amplifier output, DAC output

WT588 Series Programming Test Board

- Supports WT588FXXA-8S, WT588FXXB-8S, WT588S/HXX-16S programming and testing via 1-wire, 2-wire, C+, IC- (requires adapter socket)
- Supports WT588DMXX modules (requires adapter socket) programming
- Supports external SPI pins, IC pins download & testing
- Supports PWM output, DAC (8Ω 1W) output







Voiced Sample Box V9.XX

- Supports WT588FXXA-8S, WT588FXXB-8S, WTN6 series via 1-wire, 2-wire, IC, SPI
- Default power-on: no playback; supports BUSY state indication and power status indication
- Works with USB downloader to replace WT588FXXA-8S, WT588FXXB-8S voices; works with PC serial port to replace WT588EXXA-8S, WT588EXXB-8S voices
- Supports DAC output, PWM output, PWM amplifier output

USB Downloader V2.XX

- Works with VSB board for programming WT588F04A/08A/02B/ WTN6040F chips

WT Chip Downloader

- Supports offline programming for WTN6A, WT588, WTV, WT2003H series chips, suitable for robotic arm batch programming
- Supports testing via 1-wire, 2-wire, UART, I^2C, SPI communication protocols
- Supports 7-segment display showing file checksum, programming mode, test address, etc.
- Supports BUSY playback status indication, power status indication, and mode indicator

Multi-Function Test Rack

- Supports testing & validation for WT588F/H series, WTN6 series, WTV series, WT2003H series, WT2605C series chips
- Supports communication methods: UART, 1-wire, 2-wire, 1-wire double-byte, 2-wire double-byte, IC communication, SPI communication, key control, etc.