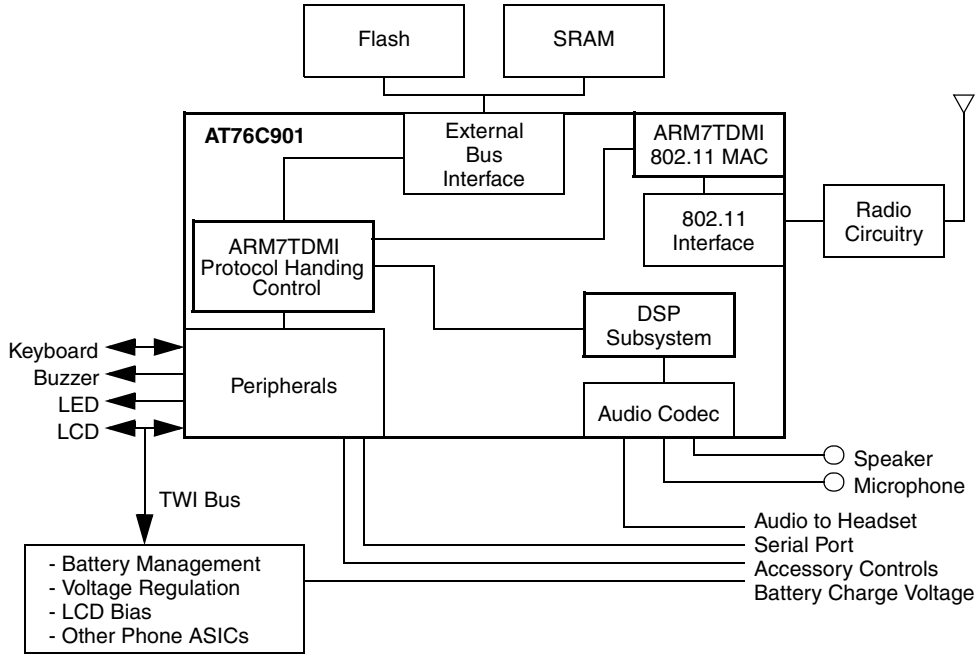
Features

- **ARM7TDMI® Core for Implementing Call Control Protocols (SIP, H.323, MGCP/MEGACO) TCP/IP and Controlling the Phone Functions**
- **Internal 8-Kbyte Program and Data Cache Used for Fast Execution of the Communications Protocols and RTOS with Reduced Power Consumption**
- **16-bit DSP for Implementing the G.723.1, G.729ab, and G.711 Standards, in Addition to Acoustic Echo Cancellation**
- **Integrated Audio Codec with Both Main and Auxiliary Paths**
- **Wireless Interface Following the IEEE 802.11b Standard**
- **Wireless LAN MAC Unit with ARM7TDMI RISC Processor**
- **Glueless External Memory Interface Supporting Up to 16 Mbytes of External SRAM/Flash and 32 Mbytes of SDRAM**
- **Glueless Interface to 11 Mbps External 802.11-based Baseband Processor**
- **Enciphering/Deciphering of Wireless Data On-the-fly, by the Implementation of the RC4 Code Ensures Maximum Privacy of Data**
- **Supports 11 Mbps Rates with Automatic Fallback to 5.5, 2, and 1 Mbps**
- **USB Slave Interface (Control, Interrupt, Bulk-in, and Bulk-out Endpoints)**
- **Analog-to-Digital Converter with Up to 400K Samples/Sec on Two Input Channels**
- **One USART and One UART**
- **Serial Peripheral Interface (SPI)**
- **64-key Keyboard Interface**
- **4 x 4 LED Matrix Controller**
- **Minimum of 13 GPIO Pins (More are Available Based on Configuration)**
- **217-pin PBGA Package**
- **Low-voltage 3.3 V Operation**

Figure 1. Typical Application Using The AT76C901



Wireless VoIP Phone-based on the 802.11 Standard Processor

AT76C901 Summary

1652AS–VoIP–06/04

Note: This is a summary datasheet. A complete document is available under NDA. For more information, please contact your local Atmel Sales Office.

Description

The AT76C901 is highly integrated ASIC that can be used as a part of a wireless phone that utilizes an 802.11 LAN-based wireless medium and carries Voice over IP (VoIP) packets. Specified in this datasheet, an ARM® processor-based subsystem (Baseband Controller) performs most of the PLCP and low MAC functions defined in 802.11. A DSP, a Codec, and support circuitry perform the encoder function and interfacing to an external baseband processor for a DSSS system. An interrupt controller and multiple support peripherals are also included.

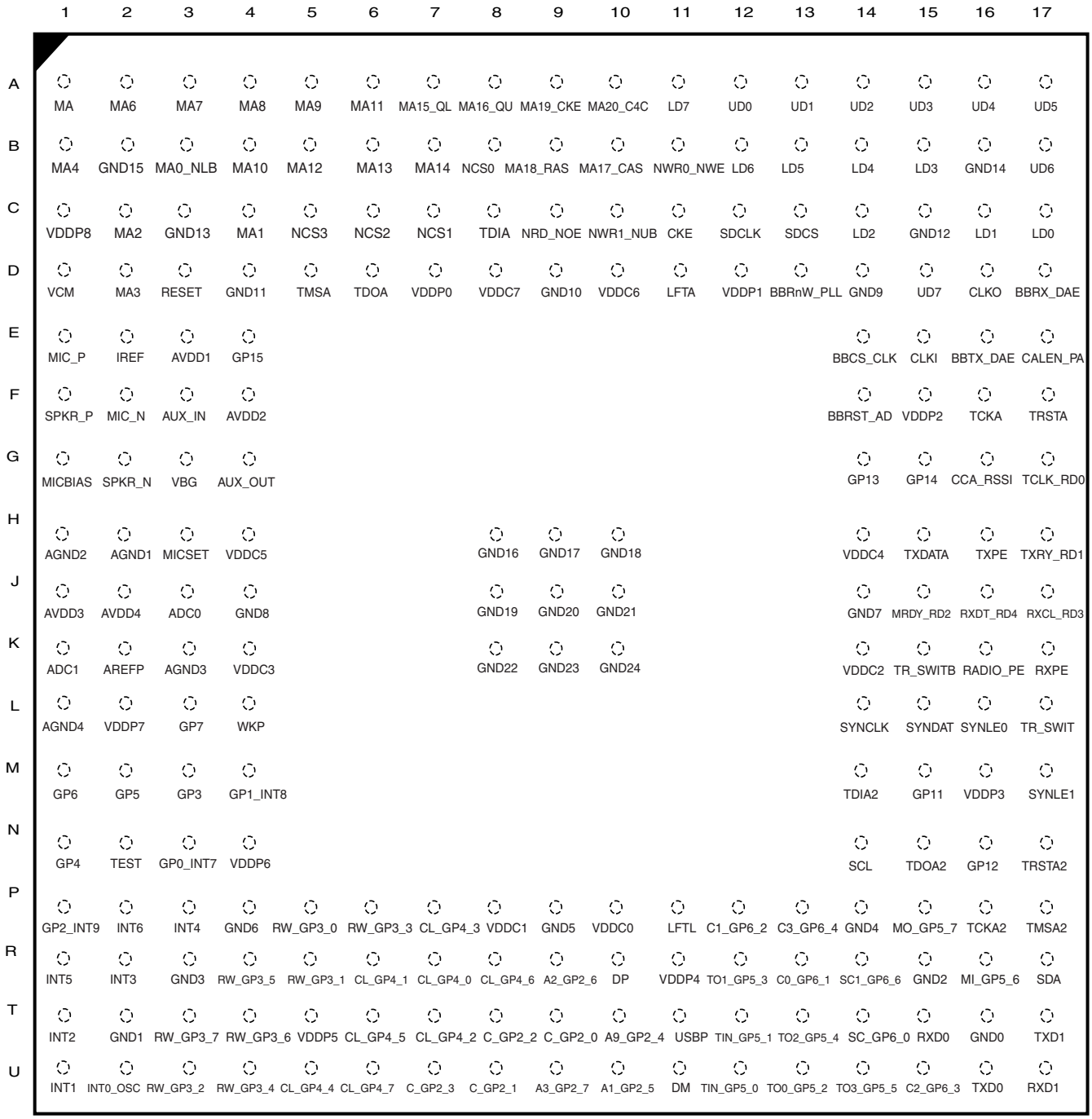
Applications

The VoIP baseband device is intended to be used in a wireless phone which operates by encapsulating voice data within IP frames and transmitting the frames over a contention-based wireless medium. Specifically, the first application of the device is targeted at a wireless phone operating on an 802.11 wireless LAN at 2.4 GHz. Figure 1 shows an example of the device being utilized in a wireless phone.

Assumptions

The AT76C901 device can be used in a wireless phone powered by battery cells. The device does not incorporate any access point type features, such as antenna diversity or Ethernet interfaces.

Pin Diagram



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
A	MA	MA6	MA7	MA8	MA9	MA11	MA15_QL	MA16_QU	MA19_CKE	MA20_C4C	LD7	UD0	UD1	UD2	UD3	UD4	UD5
B	MA4	GND15	MA0_NLB	MA10	MA12	MA13	MA14	NCS0	MA18_RAS	MA17_CAS	NWR0_NWE	LD6	LD5	LD4	LD3	GND14	UD6
C	VDDP8	MA2	GND13	MA1	NCS3	NCS2	NCS1	TDIA	NRD_NOE	NWR1_NUB	CKE	SDCLK	SDCS	LD2	GND12	LD1	LD0
D	VCM	MA3	RESET	GND11	TMSA	TDOA	VDDP0	VDDC7	GND10	VDDC6	LFTA	VDDP1	BBRnW_PLL	GND9	UD7	CLKO	BBRX_DAE
E	MIC_P	IREF	AVDD1	GP15										BBCS_CLK	CLKI	BBTX_DAE	CALEN_PA
F	SPKR_P	MIC_N	AUX_IN	AVDD2										BBRST_AD	VDDP2	TCKA	TRSTA
G	MICBIAS	SPKR_N	VBG	AUX_OUT										GP13	GP14	CCA_RSSI	TCLK_RD0
H	AGND2	AGND1	MICSET	VDDC5				GND16	GND17	GND18				VDDC4	TXDATA	TXPE	TXRY_RD1
J	AVDD3	AVDD4	ADC0	GND8				GND19	GND20	GND21				GND7	MRDY_RD2	RXDT_RD4	RXCL_RD3
K	ADC1	AREFP	AGND3	VDDC3				GND22	GND23	GND24				VDDC2	TR_SWITB	RADIO_PE	RXPE
L	AGND4	VDDP7	GP7	WKP										SYNCLK	SYNDAT	SYNLE0	TR_SWIT
M	GP6	GP5	GP3	GP1_INT8										TDIA2	GP11	VDDP3	SYNLE1
N	GP4	TEST	GP0_INT7	VDDP6										SCL	TDOA2	GP12	TRSTA2
P	GP2_INT9	INT6	INT4	GND6	RW_GP3_0	RW_GP3_3	CL_GP4_3	VDDC1	GND5	VDDC0	LFTL	C1_GP6_2	C3_GP6_4	GND4	MO_GP5_7	TCKA2	TMSA2
R	INT5	INT3	GND3	RW_GP3_5	RW_GP3_1	CL_GP4_1	CL_GP4_0	CL_GP4_6	A2_GP2_6	DP	VDDP4	TO1_GP5_3	C0_GP6_1	SC1_GP6_6	GND2	MI_GP5_6	SDA
T	INT2	GND1	RW_GP3_7	RW_GP3_6	VDDP5	CL_GP4_5	CL_GP4_2	C_GP2_2	C_GP2_0	A9_GP2_4	USBP	TIN_GP5_1	TO2_GP5_4	SC_GP6_0	RXD0	GND0	TXD1
U	INT1	INT0_OSC	RW_GP3_2	RW_GP3_4	CL_GP4_4	CL_GP4_7	C_GP2_3	C_GP2_1	A3_GP2_7	A1_GP2_5	DM	TIN_GP5_0	TO0_GP5_2	TO3_GP5_5	C2_GP6_3	TXD0	RXD1

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1652AS–VoIP–06/04