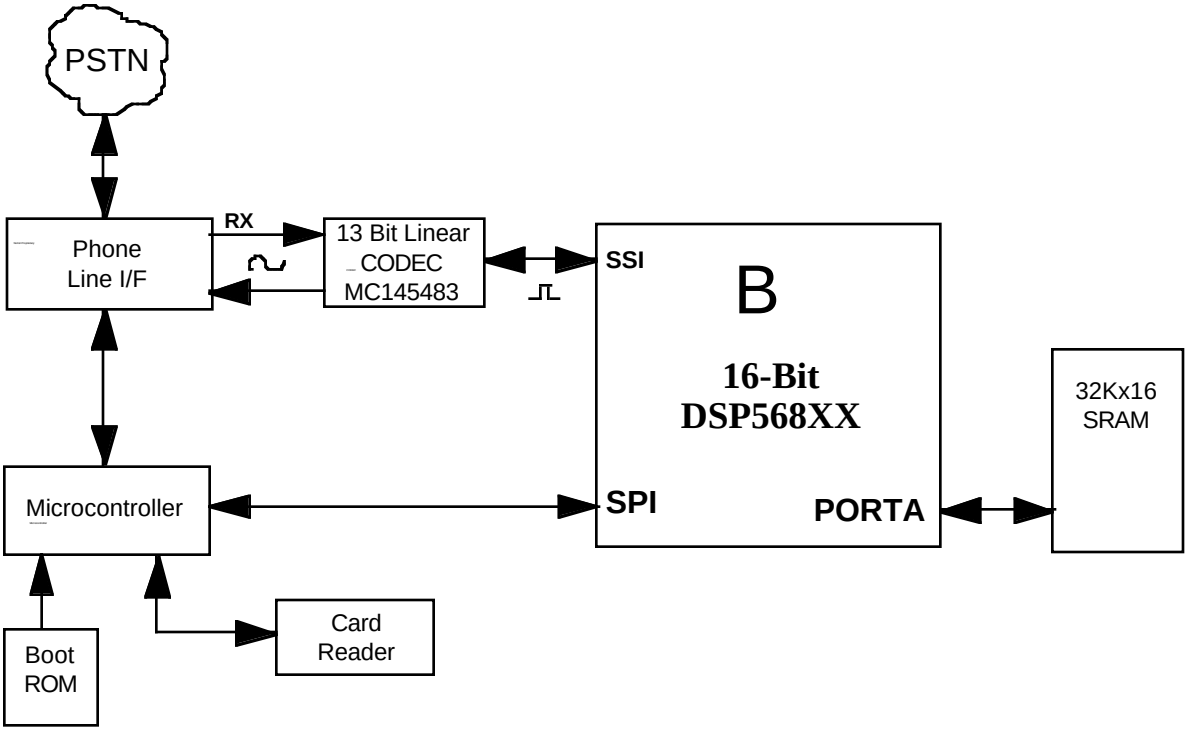
Modem

Low Speed Modem



Application Description

This document describes the implementation of a low speed modem using the DSP56800 family of Digital Signal Processors. The block diagram above describes a modem inside a smart card reader; other potential applications include security systems or credit card verification systems.

The smart card reader can perform currency transactions from one person to another, or from a person to a bank. The application uses DTMF sequences as passwords and transfers data (currency) through a V.22bis modem (2400bps), using the V.42/LAPM error correction protocol.

Motorola DSP

DEVICE	TYPE	MIPS (max)	mA/MIPS (min)	PACKAGE	PINS	TECH.
DSP56L811	16-bit fx.pt	20	~1.0	TQFP	100	0.65 micron

MEMORY (words)				PERIPHERALS				
Program	Data	Program	Data	SSI	TIMER*	SPI	DEBUG	PLL
1K	2K	64	--	1	5	2	OnCE	yes

* This includes 3 general purpose timers, 1 realtime timer, and 1 COP timer.

INTRO DATE	PRICE -10,000	TARGET AREAS
1Q '96		low cost / consumer

The following table provides detailed requirements for a smart card application. This can be used a baseline for similar applications.

DEVICE	SOFTWARE FUNCTION	MIPS REQUIRED	MEMORY REQUIRED (WORDS)		PERIPHERALS REQUIRED				
					SSI	TIMER	SPI	DEBUG	PLL
			Program	Data					
	V.22bis	3.2	4500	2000					
	V.42/LAPM	0.45	3800	3000					
	DTMF Detection	0.75	1000	400					
	Control	0.5 (est.)	500 (est.)	500 (est.)					
DSP56L811	TOTALS	4.9	9800	5900	1	0	1	OnCE	yes

Development tools

DSP56800 CLAS Package.
DSP56800 ADS system.
Tartan C compiler for the DSP56800 family.