

SPEECH SYNTHESIZER

μ PD7751

NEC

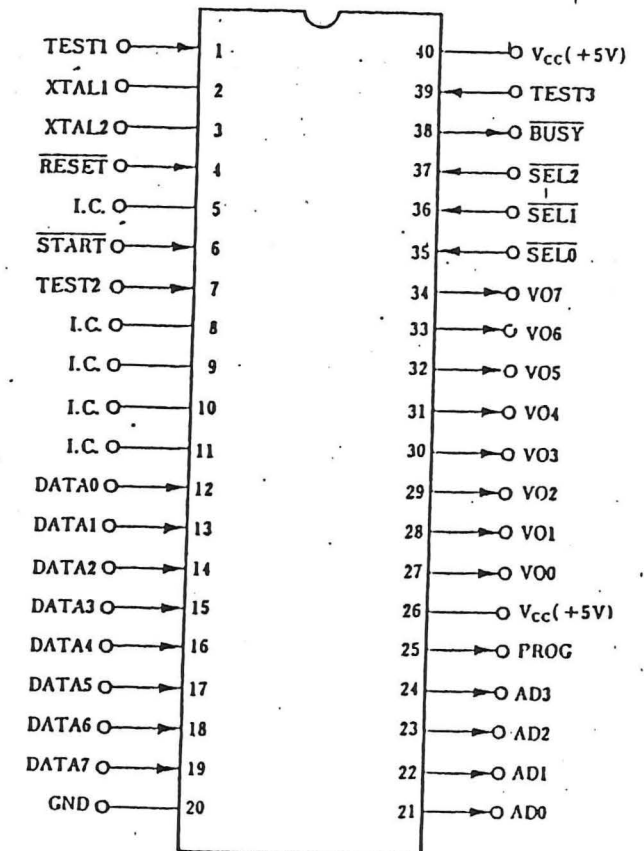
NEC Electronics (Europe) GmbH

μPD7751

FEATURES

- ADPCM DECODING CAPABILITY
- ZERO SIGNAL DURING CROMPRESSION DECODING
- EASY VOICE PROCESSING
 - HIGH-QUALITY VOICE
 - LOW DEPENDENCE ON TALKER'S VOICE CHARACTER
 - EASY ANALYSIS AND DATA GENERATION
 - STABLE VOICE QUALITY
 - BACKGROUND MUSIC MIXING CAPABILITY
- SAMPLING CLOCK:
 - 4 KHZ TO 6 KHZ
- VARIABLE BIT RATE:
 - 14 KBPS TO 20 KBPS
- 8 DIRECTLY SELECTED MESSAGES
- VARIOUS EXTERNAL ROM APPLICABLE
- N CHANNEL MOS
- 40-PIN PLASTIC DIP
- +5V SINGLE POWER SUPPLY
- SUPPLY CURRENT 65mA TYP.
- OPERATING TEMPERATURE RANGE 0~+70°C

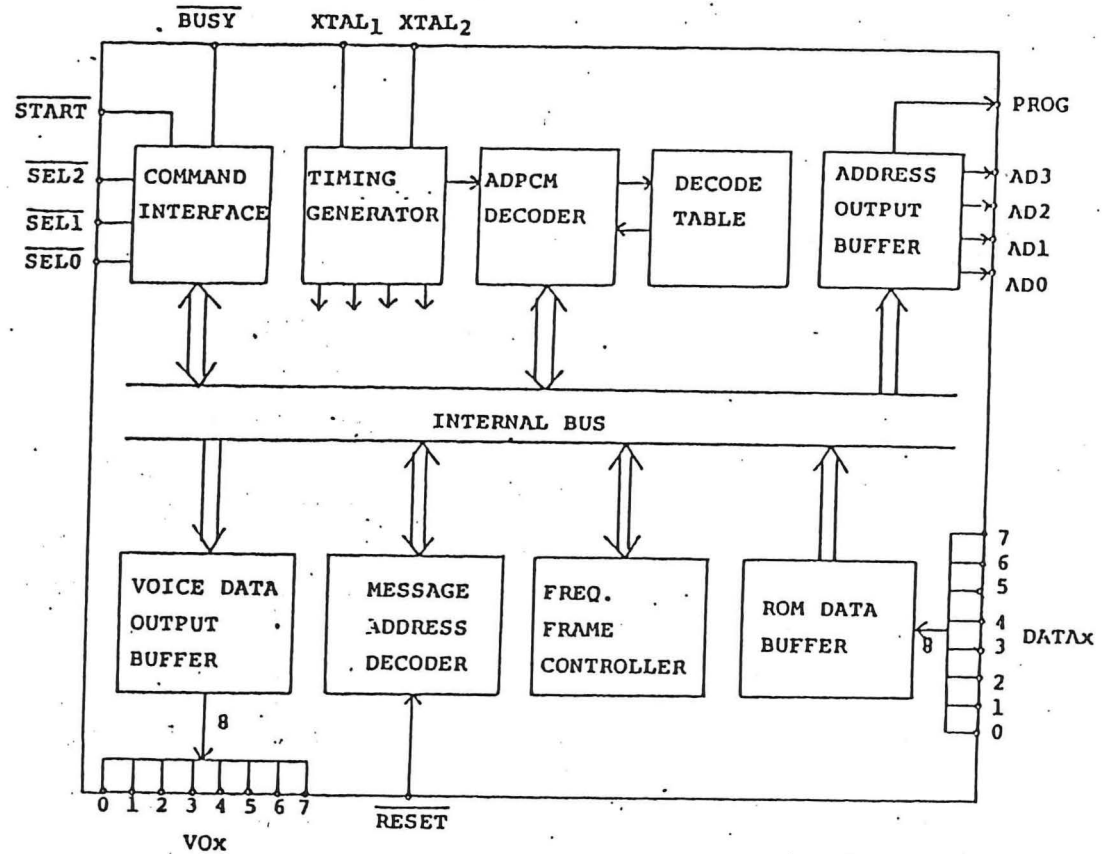
PIN CONFIGURATION (Top View)



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BLOCK DIAGRAM



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ADPCM - ADAPTIVE DIFFERENTIAL PCM

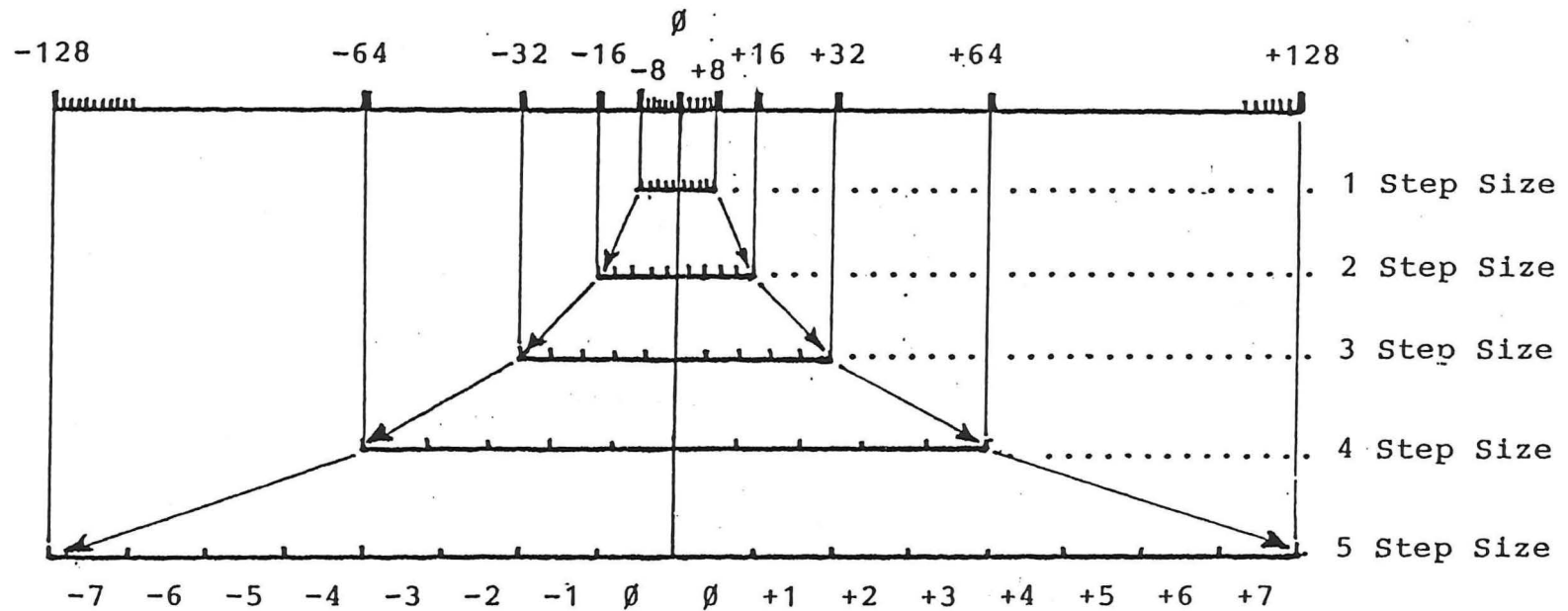
- QUANTIZATION STEP VARIED ACCORDING TO THE INPUT SIGNAL AMPLITUDE (μPD7751 HAS 5 BINARY CODED STEPS)
- EACH 8 BIT DIFFERENTIAL PCM SAMPLE ENCODED WITH 4 BITS PRECEDED BY THE QUANTIZATION STEP SIZE
- THE QUANTIZATION STEP SIZE IS CONSTANT WITHIN ONE FRAME (8 - 128 SAMPLES)
- ZERO SIGNAL DURATION (10-20%) IS STORED SEPARATELY FROM THE SPEECH DATA
- FINALLY BY DIGITAL INTEGRATION A 8 BIT PCM OUTPUT AT THE SAMPLING RATE WILL RESULT

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ADAPTIVE DIFFERENTIAL PCM

QUANTIZATION STEP SIZE AND CORRESPONDING CODE

8 Bit Differential Code

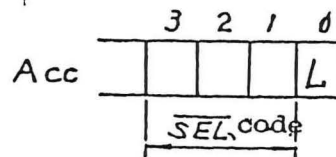
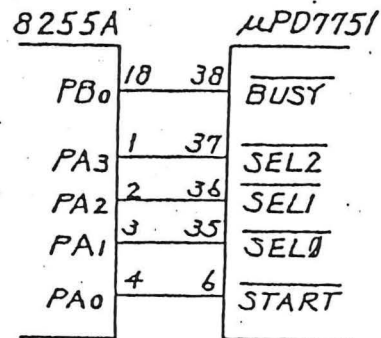
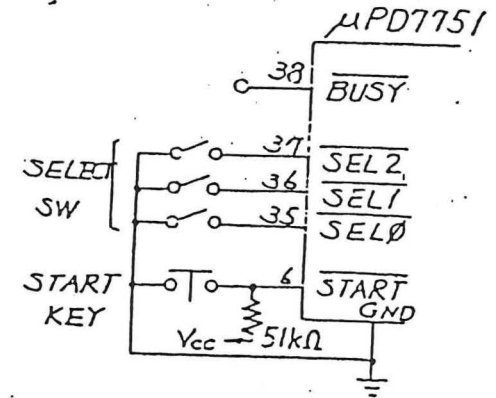


4 Bit Code Correspondance

MESSAGE SELECTION

° DIRECTLY 8 MESSAGES SELECTION

° EASILY EXPANDABLE

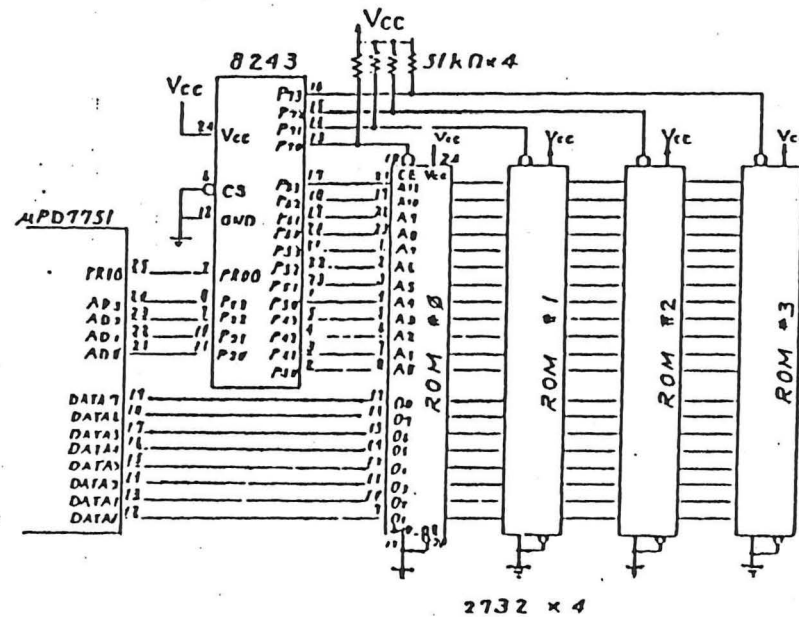


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EXTERNAL ROM ADDRESSING & SELECTION

- 4 MEMORY CHIPS SELECTABLE WITHOUT EXTERNAL DECODING
- ANY MEMORY CHIP USABLE WITH ACCESS TIME LOWER THAN 4μS

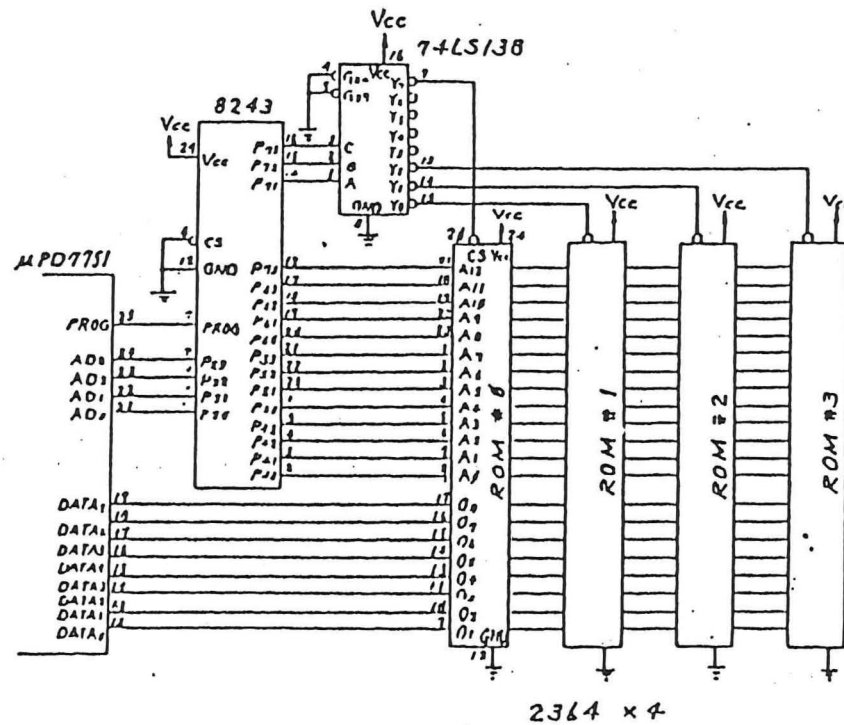


Chip Select Mode ROM Interface

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EXTERNAL ROM ADDRESSING & SELECTION

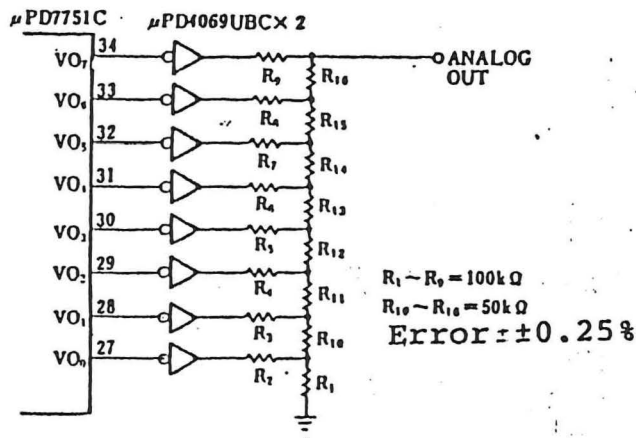


Binary Addressing Mode (256 kBit ROM)

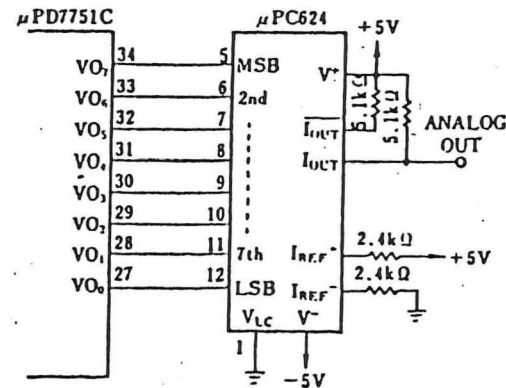
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D/A CONVERSION

- 8 BIT MONOLITHIC OR RESISTOR LADDER DAC'S USABLE



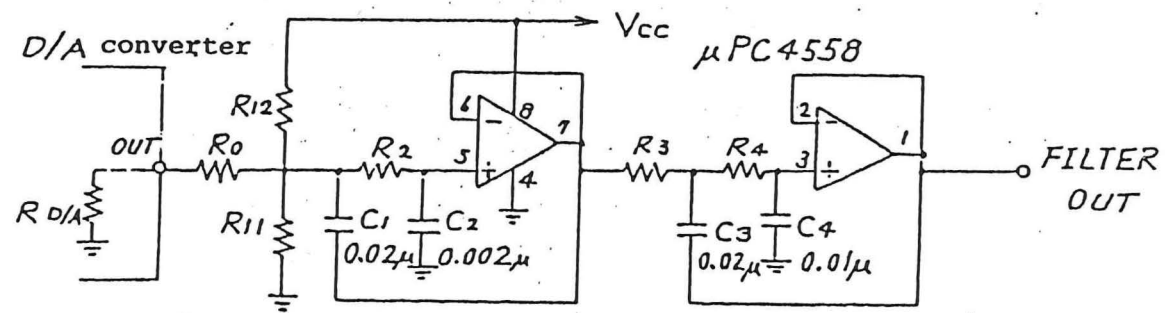
D/A Converter Using Resistor Ladder.



D/A Converter Using μ PC624.

LOW PASS FILTER

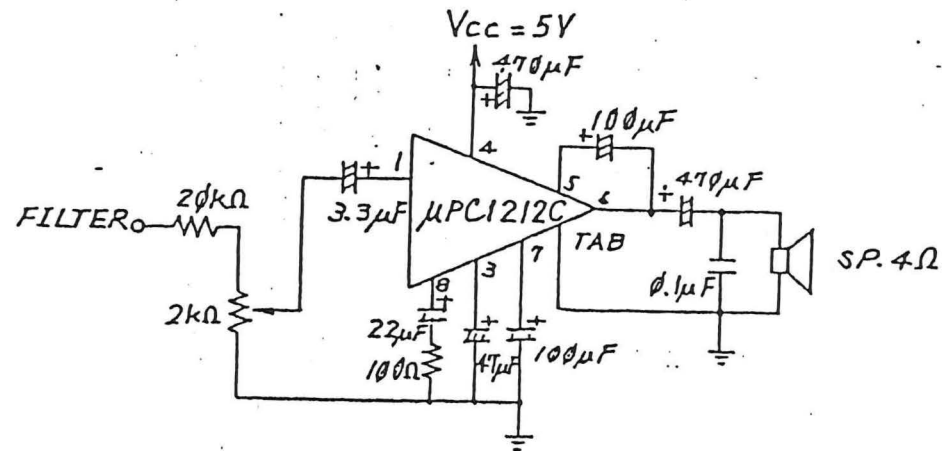
• 24dB/OCT BUTTEWORTH ACTIVE FILTER WITH DUAL OP-AMP



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POWER AMPLIFIER

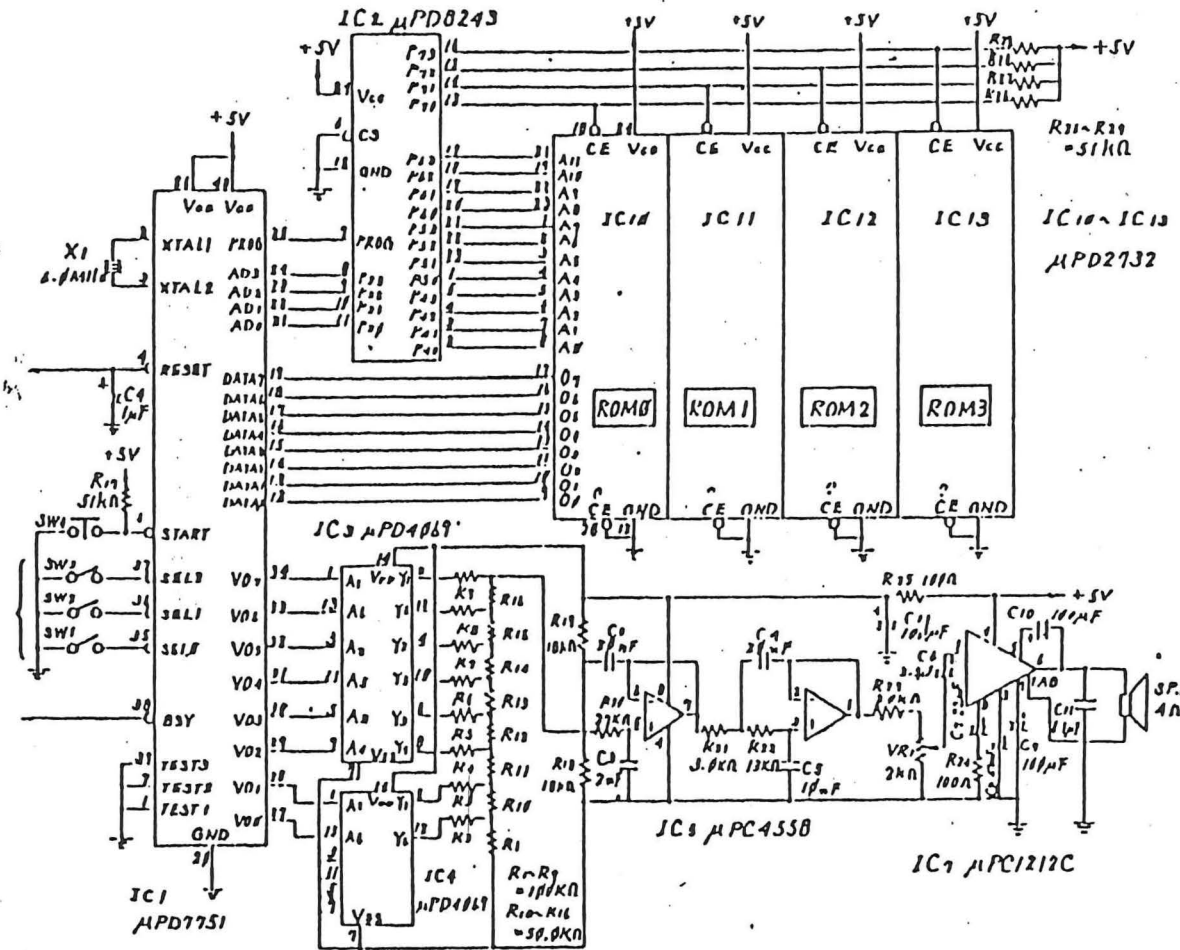
- SINGLE SUPPLY, LOW VOLTAGE (+5V) POWER AMPLIFIER (0,75W)



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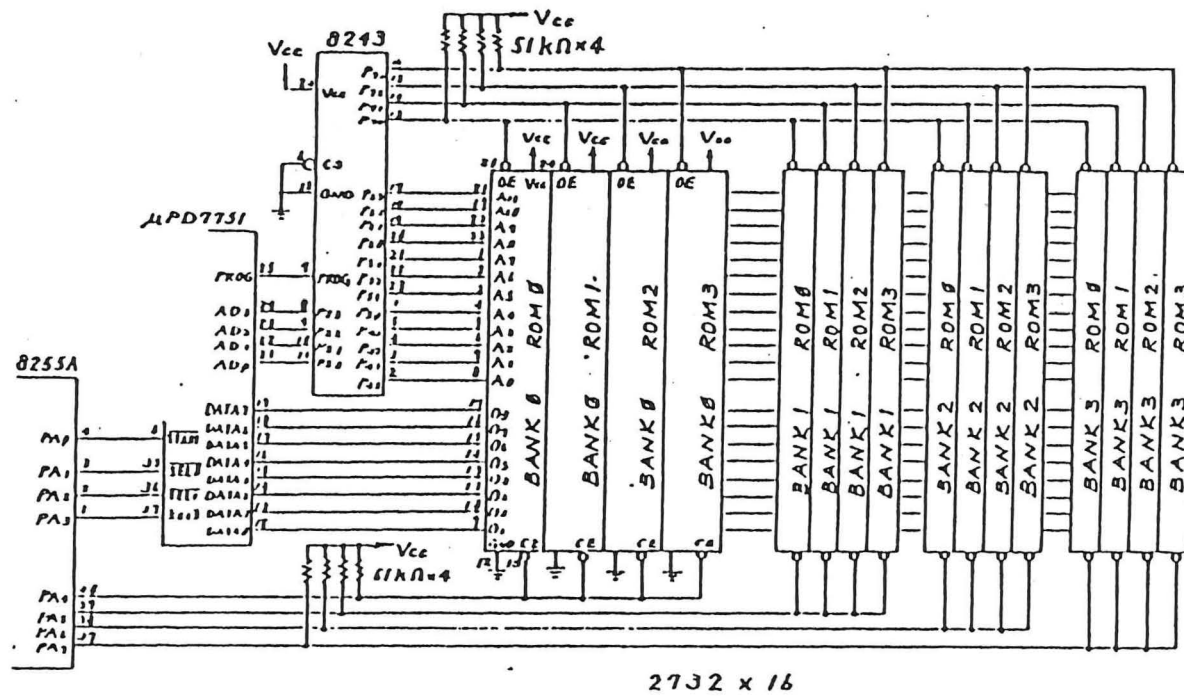
MPD7751 SPEECH SYNTHESIS SYSTEM DESIGN

- (1) Ext. reset input
- (2) START key
- (3) Select sw
- (4) Busy output



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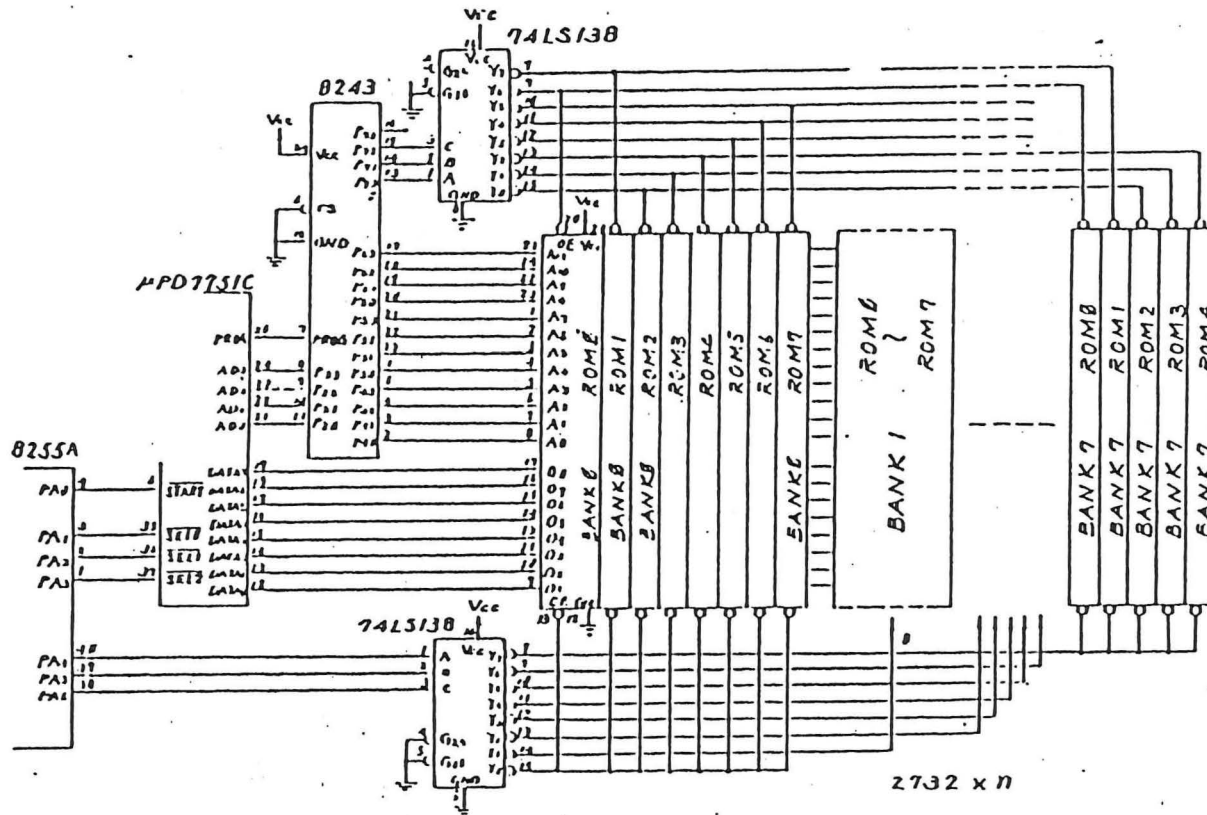
μPD7751 SPEECH SYNTHESIS SYSTEM DESIGN



ROM Interface for 32 Message Selection

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MPD7751 SPEECH SYNTHESIS SYSTEM DESIGN



Full Binary Decoding ROM Interface

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