Typical DP8570A Interface to the IBM PC/XT for the Purpose of Engineering Evaluation

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Milt Schwartz
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The following information has been provided to assist the reader in developing an evaluation setup for the DP8570A family of Real Time Clocks. This interface was prototyped and debugged for use in an IBM PC/XT or compatible bus computer with an accompanying program written in the C language.

Hardware Used

The interface consists of:

DP8570A Timer Clock Peripheral
74ALS521 Address Decoder (I/O Hex 300 to 31F)
74ALS245 Transceiver (Data Bus Buffer)
Lithium Battery (3.4V Nominal)
Standard Pierce Parallel Resonant Crystal
(32.768 kHz, ±20 ppm)
Various Capacitors (±10%)
Various Resistors (1/8W ±10%)

Refer to the complete schematic provided. *(Figure 1)*

As shown on the schematic, T1, G1, G0 MFO, INTR, and TCK are available for monitoring purposes.

Pins T1, MFO, INTR, and TCK have 3.9k pull-up resistors to V_{BB}. These resistors allow operation of T1, MFO, and INTR outputs during power down when in the battery backed mode. The resistor on TCK guarantees this input will not be floating.

Pins G0 and G1 have 10k pull-down resistors to ground. These resistors ensure that Timer 0 and Timer 1 are enabled by the hardware.

A resistor divider was placed at the $\overline{\text{PFAIL}}$ pin in place of an external power fail signal (as suggested in the data sheet). This facilitates bus lockout during a power fail/return. The user may wish to simulate standby mode by changing the voltage at the $\overline{\text{PFAIL}}$ pin. For example, this may be accomplished by connecting a resistor (fixed or variable) in parallel with the 3.4k resistor.

Separate power supplies for V_{CC} and V_{BB} may be used in place of the system 5V supply and battery for the purpose of monitoring the supply currents.

Software

A demo program, TCP, was written in C language and designed to run on MS-DOS or PC-DOS. The program TCP consists of several pop up menus with the initial display as the main menu. This menu lists the available functions which may be called. Each pop up menu prompts for an entry and provides on-screen documentation.

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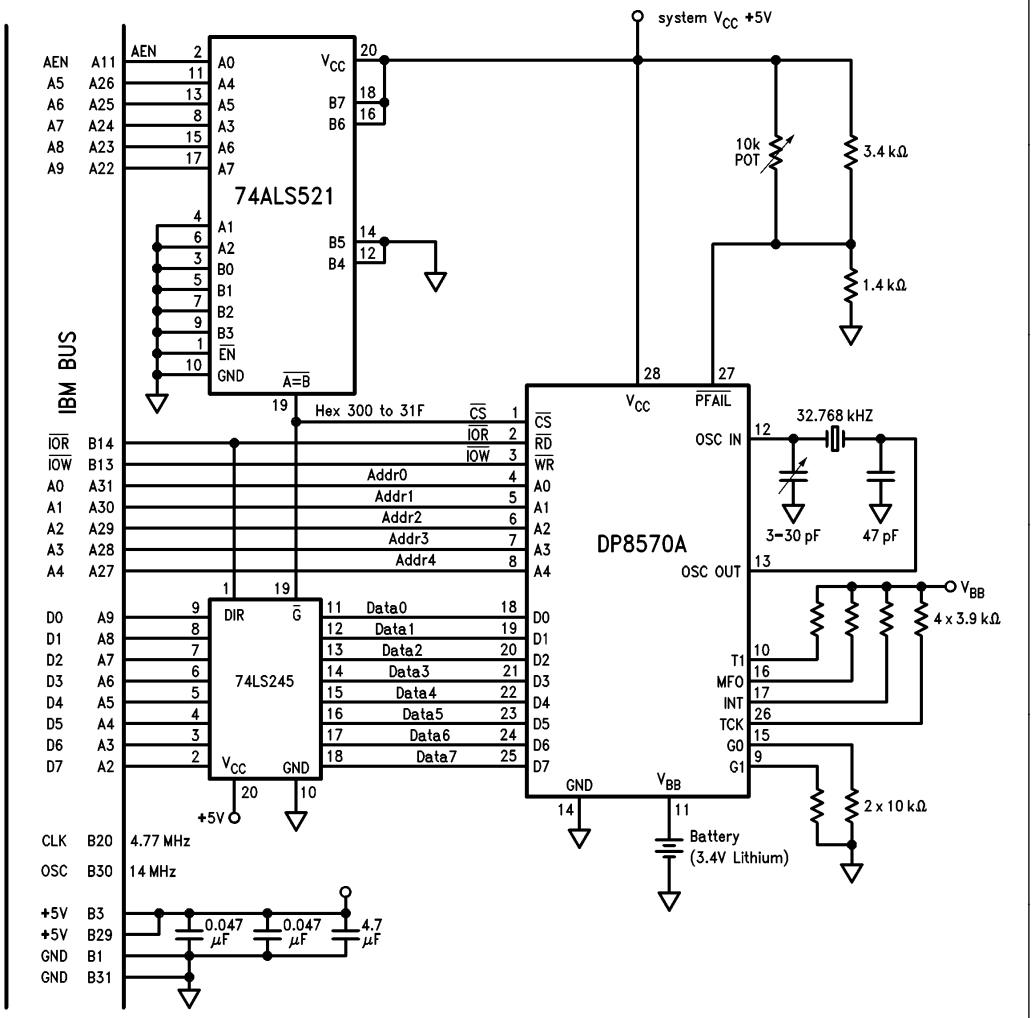

FIGURE 1. DP8570A Timer Clock Peripheral Interface to IBM/XT

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National Semiconductor Corporation
1111 West Bardin Road
Arlington, TX 76017
Tel: 1(800) 272-9959
Fax: 1(800) 737-7018

National Semiconductor Europe
Fax: (+49) 0-180-530 85 86
Email: cnjwge@tevm2.nsc.com
Deutsch Tel: (+49) 0-180-530 85 85
English Tel: (+49) 0-180-532 78 32
Français Tel: (+49) 0-180-532 93 58
Italiano Tel: (+49) 0-180-534 16 80

National Semiconductor Hong Kong Ltd.
13th Floor, Straight Block,
Ocean Centre, 5 Canton Rd.
Tsimshatsui, Kowloon
Hong Kong
Tel: (852) 2737-1600
Fax: (852) 2736-9960

National Semiconductor Japan Ltd.
Tel: 81-043-299-2309
Fax: 81-043-299-2408