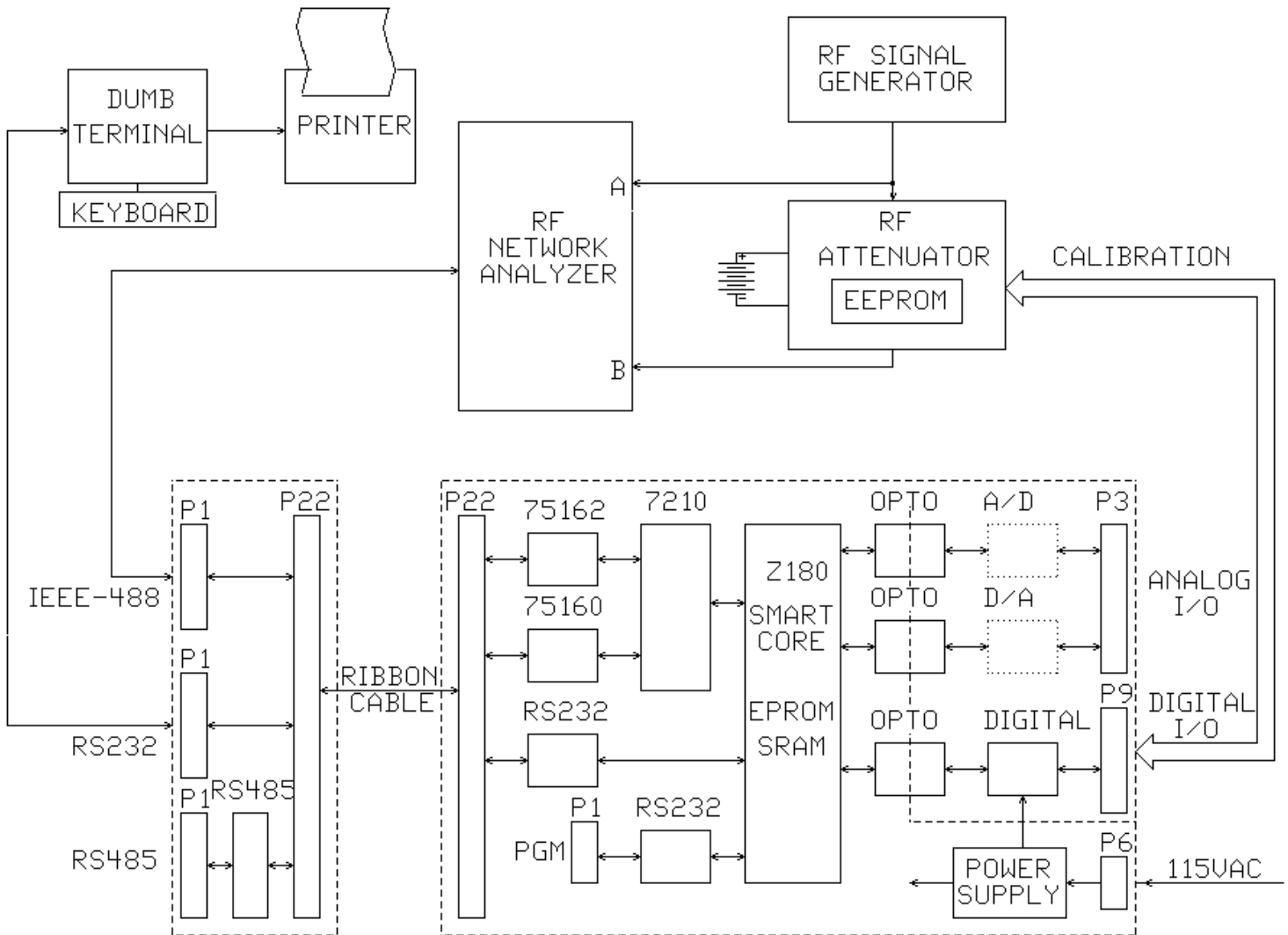*This application note covers the use of the SBC488-OEM as a test controller (MT-488). The connection of the SBC488 to a typical system is shown below. In this application, the customer builds RF attenuators. He calibrates each unit by storing constants stored in an onboard EEPROM. He wrote a calibration program (excerpt on next page) with the integrated C environment and debugged it right on the SBC488 using a PC. Then he burned the program into the SBC488 EPROM (Flash EPROM is also available).*

The attenuator calibration is performed using an RF network analyzer and the SBC488. The test technician uses the dumb terminal to specify the part number of the attenuator to test. The SBC488 program determines the number of control bits and attenuator steps. The SBC488 controls the U.U.T. using it's digital outputs. The command uses twelve bits and 12 bits are used for the calibration factor. The EEPROM is programmed with a write strobe bit. The SBC488 uses the RF network analyzer to measure the attenuation and make corrections as required. When the attenuator is in tolerance, the SBC488 sends the write strobe to the attenuator under test to burn in the calibration factor. Results are logged on the printer for quality control records.

Portions of the C source code for this application are excerpted on the following page.

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```
/////////////////////////////////////////////////////////////////////////
//(c) Tidal Engineering  Jan 1996                                        /
//The following C code example is the IEEE 488 portion of the main loop . /
//By editing the command strings and case statements you can modify the   /
//SBC488-OEM to perform your unique application.                          /
/////////////////////////////////////////////////////////////////////////
main(){
    //Calibrate this twelve bit RF attenuator, (4096 steps)
    char *cmds[] = {"AD?", "DA?","DA","D?","D","*ESR?","*ESE?","*ESE","*STB?","*SRE?","*SRE"};
    char s, t,data;
    char tbuf[ieee_out_len], rbuf[ieee_in_len];
    int commands;
    unsigned int chan;
    int ii,n,j,z, steps;
    char temp[25];
    init_io();
    leds=255;
    outport(CS_574,255);                    //turn off all leds   VdInit();/// initialize the virtual driver
    hitwd();
    m_flag=0;
    ieee_in_ptr=ieee_in;
    *ieee_in_ptr='\0';
    for (steps= 0,steps<4096,steps++)  {
        cal=0;
        itoa(steps/40,temp);
        do{
            d[msb]=cal/256;
            d[lsb]=cal % 256;
            strcat( ieee_out, "atten?");
            if strcmp( ieee_in, temp)>=0 {
                done=true;
            }
            else {
                cal++
            }
        while(!done & cal<4095);
        if done {
            d[program]=1;d[program]=0; //burn EEPROM with calibration
        }
        else {
        printf("Error in calibration");
    };
```

The SBC488 is available exclusively from:

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