```
// uses real time mode to read 512 samples from each axes
separately // SPI CLK = 2.25MHZ, stall time = 18us
void read_xyz_20k(void)
{
	unsigned short i;
	short int hi_byte, lo_byte;

	// initialization
	write_reg_int(0x1A,0x1100);			// write to record control register 1
	delay_ms(50);
	command_time(0x3E,BIT0);			// autonull command
	write_reg(0x3A,0x00);				// AVG_CNT for SR0
	delay_ms(50);
	write_reg(0x36,0x0F);				// enable busy indicator / data ready
	delay_ms(50);

	// configure part for real time mode
	write_reg_int(0x1A,0x1103);			// write to record control register 1
	delay_ms(200);

	// wait for data ready to raise
	while((GP3DAT & 0x00000001) != 0x00000001);
	// wait for data ready to drop
	while(GP3DAT & 0x00000001);

	// read 512 samples from x
	for(i = 0; i < 512; i++)
	{
		// wait for data ready to raise
		while((GP3DAT & 0x00000001) != 0x00000001);

		GP2DAT &= ~0x00010000;		// lower !CS pin

		// send address for x axis
		hi_byte = spi_rw(0x14);		// read x-axis data hi byte (previous sample period)
		lo_byte = spi_rw(0x00);		// read x-axis data lo byte (previous sample period)

		CAPT_BUF1[i] = (hi_byte << 8) + lo_byte;

		GP2DAT |= 0x00010000;		// raise !CS pin
```

```
            delay_us(18);                   // stall time (approx 18us)

            // wait for data ready to drop
            while(GP3DAT & 0x00000001);

      }

      // read 512 sample from y
      for(i = 0; i < 512; i++)
      {
            // wait for data ready to raise
            while((GP3DAT & 0x00000001) != 0x00000001);

            GP2DAT &= ~0x00010000;          // lower !CS pin

            // send address for y axis
            hi_byte = spi_rw(0x16);         // read y-axis data hi byte (previous sample period)
            lo_byte = spi_rw(0x00);         // read y-axis data lo byte (previous sample period)

            CAPT_BUF2[i] = (hi_byte << 8) + lo_byte;

            GP2DAT |= 0x00010000;           // raise !CS pin

            delay_us(15);                   // stall time (approx 15us)

            // wait for data ready to drop
            while(GP3DAT & 0x00000001);

      }
      // read 512 samples from z
      for(i = 0; i < 512; i++)
      {
            // wait for data ready to raise
            while((GP3DAT & 0x00000001) != 0x00000001);

            GP2DAT &= ~0x00010000;          // lower !CS pin

            // send address for z axis
            hi_byte = spi_rw(0x18);         // read z-axis data hi byte (previous sample period)
            lo_byte = spi_rw(0x00);         // read z-axis data lo byte (previous sample period)
            CAPT_BUF3[i] = (hi_byte << 8) + lo_byte;

            GP2DAT |= 0x00010000;           // raise !CS pin

            delay_us(15);                   // stall time (approx 15us)

            // wait for data ready to drop
            while(GP3DAT & 0x00000001);

      }


      // print to serial all three axis
      print_time();

}

char spi_rw(char data)
{
      SPITX = data;                        // transmit byte
      while ((SPISTA & 0x08) != 0x08);  // wait for data received status bit
      return SPIRX;                          // return received byte
}
```