Micromint, Inc	**Application Note**
	Product: Domino 2
Accessing the Coprocessor I/O	Date: 7/28/99

Introduction: This application note presents a program in Basic-52 that uses the Domino II's coprocessor digital inputs and outputs.

Background: One of Domino II's features is the 16 bits of I/O available through it's coprocessor, which offer:

- 20-mA source per pin.
- 25-mA sink per pin.
- Bit or port programmable.

While using the coprocessor is straight forward, it does require a series of instructions which are easier to use than adding an external I^2C I/O expansion IC to the Domino I.

How it works: The coprocessor communicates with the processor via the I^2C bus. It accepts an I^2C instruction through built in routines in Domino Utilities. Each port and bit has it's own preset address. For example PORT A's direction control is located at address 30H. Setting this bit makes all 8 bits of PORT A outputs. The following simple program illustrates using the coprocessors I/O by addressing each port.

Program Listing:

```
 10 REM ** This program demonstrates how to operate the Domino 2's
 20 REM ** Coprocessor I/O's. It will allow you to set each port
 30 REM *** as inputs or outputs and allow you to read the inputs
 40 REM *** and set the outputs.
 50 ?"Menu"
 60 ?"1 - Set PORT A direction register as inputs"
 70 ?"2 - Set PORT B direction register as inputs"
 80 ?"3 - Set PORT A direction register as outputs"
 90 ?"4 - Set PORT B direction register as outputs"
100 ?"5 - Read PORT A's inputs"
110 ?"6 - Read PORT B's inputs"
120 ?"7 - Set PORT A's outputs"
130 ?"8 - Set PORT B's outputs"
140 INPUT A
150 IF A=1 THEN GOTO 240
160 IF A=2 THEN GOTO 290
170 IF A=3 THEN GOTO 340
180 IF A=4 THEN GOTO 390
190 IF A=5 THEN GOTO 440
200 IF A=6 THEN GOTO 520
210 IF A=7 THEN GOTO 580
220 IF A=8 THEN GOTO 650 ELSE GOTO 50
230 REM *** Setting PORT A as inputs.
240 R = 30H
250 DT = 0FFH
260 GOSUB 11000
270 GOTO 50
280 REM *** Setting PORT B as inputs.
290 R = 33H
```

```
  300 DT = 0FFH
  310 GOSUB 11000
  320 GOTO 50
  330 REM *** Setting PORT A as outputs.
  340 R = 30H
  350 DT = 0H
  360 GOSUB 11000
  370 GOTO 50
  380 REM *** Setting PORT B as outputs.
  390 R = 33H
  400 DT = 0H
  410 GOSUB 11000
  420 GOTO 50
  430 REM *** Read PORT A's inputs.
  440 R = 31H
  450 GOSUB 10000
  460 ?"The decimal value of PORT A is ":PH0. DT
  470 G = GET
  480 IF G=0 THEN 470
  490 GOTO 50
  500 REM *** Read PORT B's inputs.
  510 R = 34H
  520 GOSUB 10000
  530 ?"The decimal value of PORT B is ":PH0. DT
  540 G = GET
  550 IF G=0 THEN 540
  560 GOTO 50
  570 REM *** Set PORT A's outputs.
  580 ?"Please input the decimal number you want PORT A to be."
  590 INPUT B
  600 R = 32H
  610 DT = B
  620 GOSUB 11000
  630 GOTO 50
  640 REM *** Set PORT B's outputs.
  650 ?"Please input the decimal number you want PORT B to be."
  660 INPUT C
  670 R = 35H
  680 DT = C
  690 GOSUB 11000
  700 GOTO 50
 9997 REM ***********************************************
 9998 REM Coprocessor Read Routine
 9999 REM
10000 PUSH 2000h + R
10010 CALL 0F12Ch
10020 POP DT
10030 IF DT>255 THEN PRINT "Communications error !!!"
10040 Return
10050 REM
10997 REM ************************************************
10998 REM Coprocessor Write Routine
10999 REM
11000 PUSH 2000h + R,DT
11010 CALL 0F128h
11020 POP DT
11030 IF DT>255 THEN PRINT "Communications error !!!"
11040 Return
11050 REM
11060 REM ************************************************
```