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### INTRODUCTION

The DS80C400 high-speed microcontroller has a built-in Ethernet media-access controller (MAC) with an industry-standard media-independent interface (MII). Please refer to the DS80C400 data sheet and the *High-Speed Microcontroller User's Guide: DS80C400 Supplement* at [www.maxim-ic.com/microcontrollers](http://www.maxim-ic.com/microcontrollers) for complete details.

There is a potential timing issue causing problems with the Ethernet receiver when a physical interface (PHY) such as the Intel LXT972ALC is connected to the reset output (RSTOL) of the DS80C400. The solution is to not connect the reset line but instead perform a software reset of the PHY. This application note describes the code necessary to perform a software reset of the PHY.

### DS80C400 MAC SOFTWARE LIBRARY

Code to access the DS80C400 MAC and external PHYs is available on our ftp site at <ftp://ftp.dalsemi.com/pub/tini/ds80c400/ethdriver/> and documented in *Application Note 712: DS80C400 Ethernet Drivers*, available at [www.maxim-ic.com/appnoteindex](http://www.maxim-ic.com/appnoteindex).

### PHY SOFTWARE RESET PROCEDURE

The IEEE Standard 802.3 defines bit 15 in the MII control register (0.15) as the reset bit. The bit is self-clearing. Using the aforementioned library, a PHY can be reset with the following code:

```
mov    b, #0                ; PHY number
mov    a, #MII_CONTROL      ; Control register
call   ETH_ReadMII
orl    l, #80h              ; Set reset bit (0.15) in r1
call   ETH_WriteMII
reset_wait:
call   ETH_ReadMII
mov    a, r1
jnb   acc.7, reset_wait    ; Loop while in reset
```

Equivalent code can be written for Java™ programs running on the TINI® Firmware 1.12 and later. `com.dalsemi.tininet.TININet` contains the `readMII` and `writeMII` methods:

```
import com.dalsemi.tininet.*;
...
int val = TININet.readMII(0, 0); /* PHY 0, register 0 */
val |= 0x8000; /* Set reset bit */
TININet.writeMII(0, 0, val); /* Perform reset */
do {
    val = TININet.readMII(0, 0);
} while ((val & 0x8000) != 0);
```

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## MAXIM INTEGRATED PRODUCTS/DALLAS SEMICONDUCTOR CONTACT INFORMATION

### ***Company Addresses:***

#### **Maxim Integrated Products, Inc.**

120 San Gabriel Drive  
Sunnyvale, CA 94086  
Tel: 408-737-7600  
Fax: 408-737-7194

#### **Dallas Semiconductor**

4401 S. Beltwood Parkway  
Dallas, TX 75244  
Tel: 972-371-4448  
Fax: 972-371-4799

### ***Product Literature/Samples Requests:***

800-998-8800  
408-737-7600

### ***Sales and Customer Service:***

#### ***Website:***

[www.maxim-ic.com](http://www.maxim-ic.com)

#### ***Product Information:***

[www.maxim-ic.com/MaximProducts/products.htm](http://www.maxim-ic.com/MaximProducts/products.htm)

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