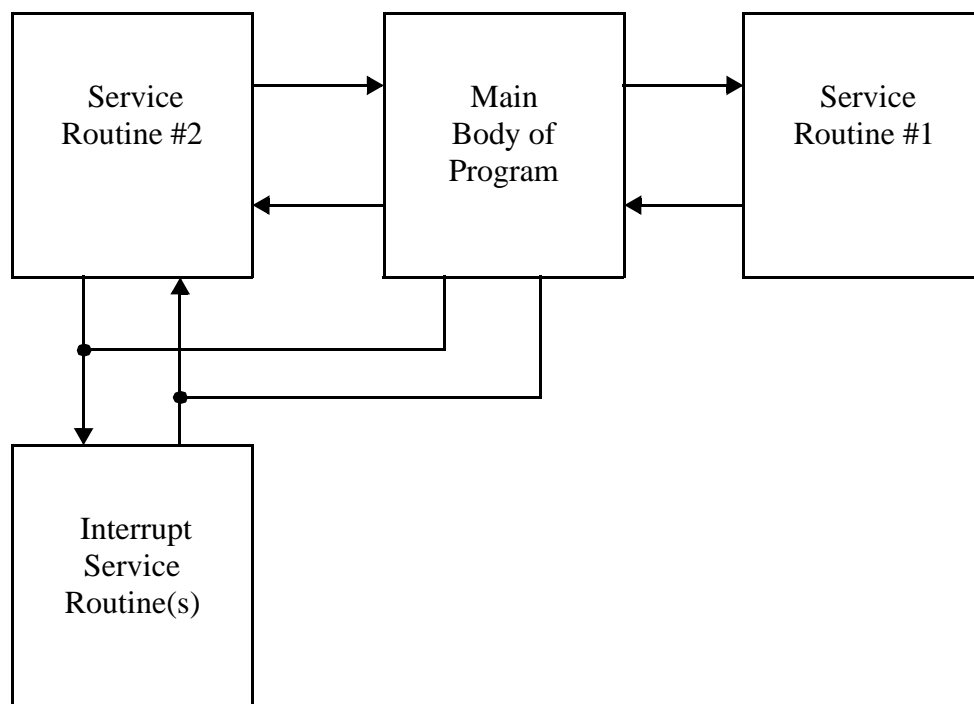


UTMC APPLICATION NOTE

UT69R000 Interrupt Architecture

The following outlines an instruction sequence that protects un-interruptible code segments from external interrupts. Figure 1 depicts a main program that accesses two service routines and numerous interrupt service routines. During execution of the main program and service routine # 2 all interrupts are un-masked and enabled. Execution of service routine #1 requires masking and disabling of external interrupts to prevent interruption.

Figure 1. Program Code Block Diagram



The UT69R000 requires execution of following sequences of instructions prior to calling a routine that requires protection from interrupts.

```
MOV RD, 0000
OTR RD, MK      ; clear mask register
NOP
NOP
CALL RD, SRV_RTNE2; branch to protected service routine
```

Immediately following the call instruction (i.e., branch to protected service routine), execute OTR R0, DSBL instruction to disable interrupts. The combination of masking and disabling prevents any latent interrupt vectors from within the protected service routine. After execution of the protected service routine, restore the mask register (OTR R_D,MK), pop return value in R_D (POP

R_D, R_S), enable interrupts (OTR R_D, ENBL), and execute a branch back to main program (CALL R_D, R_S).

```
MOV RD, XXXX16
OTR RD, MK      ; re-store mask register
POP RD, RS     ; establish return value
OTR RD, ENBL   ; enable interrupts
CALL RD, MAIN; branch to protected service routine
```