

```
pid_update
PUSH    {R4-R6}
(collapsed code)
STRD.W  R3, R4, [R7,#0x30]
(collapsed code)           ;integration with windup guarding
BEQ     loc_81D0
```

```
LDR     R3,=int_error      ;int_error >= windup_guard
(collapsed code)
B       loc_81F2
```

```
LDR     R3,=int_error      ;int_error==windup_guard
(collapsed code)
B       loc_81F2
```

```
LDR     R3,=windup_guard    ;int_error>windup_guard
(collapsed code)           ;int_error=windup_guard
```

```
LDR     R3,=prev_error      ;differentiation
(collapsed code)
STRD.W  R3,R4,[R7#0x28]
LDR     R3,=proportional_gain ;scaling
(collapsed code)
BL      _muldf3
(collapsed code)
LDR     R3,=integral_gain
LDRD.W  R0,R1,[R3]
LDR     R3,=int_error
(collapsed code)
BL      _muldf3
(collapsed code)
LDR     R3,=derivative_gain
(collapsed code)
BL      _muldf3
(collapsed code)
LDR     R2,=control          ;summation of terms(control=p+i+d)
(collapsed code)
LDR     R2,=prev_error      ;prev_error=curr_error
(collapsed code)
POP     {R4-R7,PC}
```