**DSAH - 32 Bit accumulator DA height of 16 Place**

| *DSAH* - uDSC Operand register DSA height of 16 Place | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| address: 0x59 (0x39) | | | | | | | | | | | | | | | Defaults: 0000_0000 | | |
| Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | Name |
| | DSA [31:16] | | | | | | | | | | | | | | | | |
| R / W | R / W | | | | | | | | | | | | | | | | |
| Bit | Name description | | | | | | | | | | | | | | | | |
| 15: 0 | DSAH 32 Bit accumulator DSA height of 16 Place | | | | | | | | | | | | | | | | |

**DSSD - DA Saturated arithmetic register**

| *DSSD* --16 Place DA Saturation calculation result | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| address: 0x22 (0x02) | | | | | | | | | | | | | | | Defaults: 0000_0000 | | |
| Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | Name |
| | DSSD [15: 0] | | | | | | | | | | | | | | | | |
| R / W | R / W | | | | | | | | | | | | | | | | |
| Bit | Name description | | | | | | | | | | | | | | | | |
| 15: 0 | DSSD 32 Bit accumulator DSA of 16 Bit saturation operation result | | | | | | | | | | | | | | | | |

### *uDSC Applications*

**Examples 1. The basic configuration and operation**

Here is a simple subroutine ( AVRGCC) To achieve a 16 Bit multiplication operation, returns 32 Bit results:

```
unsigned long dsu_xmuluu ( unsigned short dy, unsigned short dx);
```

For the following C Assembly function implementation code:

```
# include       "Udsc_def.inc"              ; Opcode definitions
                . Global      dsu_xmuluu    ; Declare for called from C / C ++ code

dsu_xmuluu:
                out           DSDX, r24     ; Load DX
                out           DSDY, r22     ; Load DY
                ldi           r20, XMULUU   ; Load opcode
                out           DSIR, r20     ; Do multiply
                in            r22, DSAL     ; {R23, r22} = AL
                in            r24, DSAH     ; {R25, r24} = AH
                ret
```