Area calculation

Assume:

Overall pixel number in sensor (PIXEL\_NUM): 6

the number of pixels that work in parallel (SRAM\_NUM): 2

number of pixels that save in one SRAM (PIXEL\_NUM\_PER\_RAM): PIXEL\_NUM / SRAM\_NUM = 3

number of bins per histogram (BIN\_NUM\_PER\_HIS): 64

number of bits per bin (peakMax): 21

number of acquisitions (ACQ\_NUM): 2

Table

Description automatically generated with medium confidencethe use of SRAM:

Histogram1

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Acq 1 (Hisogram 1 | Pixel1 data1 | Pixel1 data2 | Pixel2 data1 | Pixel2 data2 | Pixel3 data1 | Pixel3 data2 |
| Input  (rough data) | 108(h’06c) | 511(h’1ff) | 1007(h’3ef) | 1007(h’3ef) | 200(h’0c8) | 90(h’05a) |
| addr | h’06 | h’1f | h’3e | h’3f | h’0c | h’05 |
| Bin Counts | 1 | 1 | 1 | 2 | 1 | 1 |
| addrSaver | h’06 | h’06 | h’3e | h’3f | h’0c | h’0c |
| recentMax | 1 | 1 | 1 | 2 | 1 | 1 |
| TH min | x | x | x | x | x | x |
| TH max | x | x | x | x | x | x |
| Delta | x | x | x | x | x | x |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Acq 2  (Hisogram 1 | Pixel1 data1 | Pixel1 data2 | Pixel2 data1 | Pixel2 data2 | Pixel3 data1 | Pixel3 data2 |
| Input  (rough data) | 511(h’1ff) | 700(h’2bc) | 90(h’05a) | 90(h’05a) | 90(h’05a) | 90(h’05a) |
| addr | h’1f | h’2b | h’05 | h’05 | h’05 | h’05 |
| Bin Counts | 2 | 1 | 1 | 2 | 2 | 3 |
| addrSaver  (each pixel seperately) | h’1f | h’1f | h’3f | h’3f | h’05 | h’05 |
| recentMax | 2 | 2 | 2 | 2 | 2 | 3 |
| TH min | x | x | x | x | x | x |
| TH max | x | x | x | x | x | x |
| Delta | x | x | x | x | x | x |

|  |  |  |  |
| --- | --- | --- | --- |
| Result | Pixel1 | Pixel2 | Pixel3 |
| addrSaver | 31(h’1f) | 62(h’3e) | 5(h’05) |
| recentMax | 2 | 2 | 3 |
| TH min | 464(h’1d0) | 961(h’3c1) | 48(h’030) |
| TH max | 528(h’210) | 1023(h’3ff) | 112(h’070) |

Histogram2

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Acq 1  (Histogram2 | Pixel1 data1 | Pixel1 data2 | Pixel2 data1 | Pixel2 data2 | Pixel3 data1 | Pixel3 data2 |
| Input  (rough data) | 300(h’12c) | 500(h’1f4) | 50(h’032) | 1000(h’3e8) | 48(h’030) | 90(h’05a) |
| addr | h’3f | h’24 | h’3f | h’27 | h’3f | h’2a |
| Bin Counts | 1 | 1 | 1 | 1 | x | 1 |
| addrSaver  (each pixel seperately) | 0 | h’24 | 0 | h’27 | x | h’2a |
| recentMax | 0 | 1 | 0 | 1 | x | 1 |
| TH min | 464(h’1d0) | 464(h’1d0) | 961(h’3c1) | 961(h’3c1) | 48(h’030) | 48(h’030) |
| TH max | 528(h’210) | 528(h’210) | 1023(h’3ff) | 1023(h’3ff) | 112(h’070) | 112(h’070) |
| Delta | 464(h’1d0) | 464(h’1d0) | 961(h’3c1) | 961(h’3c1) | 48(h’030) | 48(h’030) |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Acq 2  (Histogram2 | Pixel1 data1 | Pixel1 data2 | Pixel2 data1 | Pixel2 data2 | Pixel3 data1 | Pixel3 data2 |
| Input  (rough data) | 600(h’258) | 500(h’1f4) | 1000(h’3e8) | 1023(h’3ff) | 120(h’078) | 90(h’05a) |
| addr | h’3f | h’24 | h’27 | h’3e | h’3f | h’2a |
| Bin Counts | 1 | 1 | 1 | x | x | 2 |
| addrSaver | h’24 | h’24 | h’27 | h’27 | h’2a | h’2a |
| recentMax | 1 | 2 | 2 | 2 | 1 | 2 |
| TH min | 464(h’1d0) | 464(h’1d0) | 961(h’3c1) | 961(h’3c1) | 48(h’030) | 48(h’030) |
| TH max | 528(h’210) | 528(h’210) | 1023(h’3ff) | 1023(h’3ff) | 112(h’070) | 112(h’070) |
| Delta | 464(h’1d0) | 464(h’1d0) | 961(h’3c1) | 961(h’3c1) | 48(h’030) | 48(h’030) |

|  |  |  |  |
| --- | --- | --- | --- |
| Result | Pixel1 | Pixel2 | Pixel3 |
| addrSaver | 36(h’24) | 39(h’27) | 42(h’2a) |
| recentMax | 2 | 2 | 2 |
| result | 500 | 1000 | 90 |