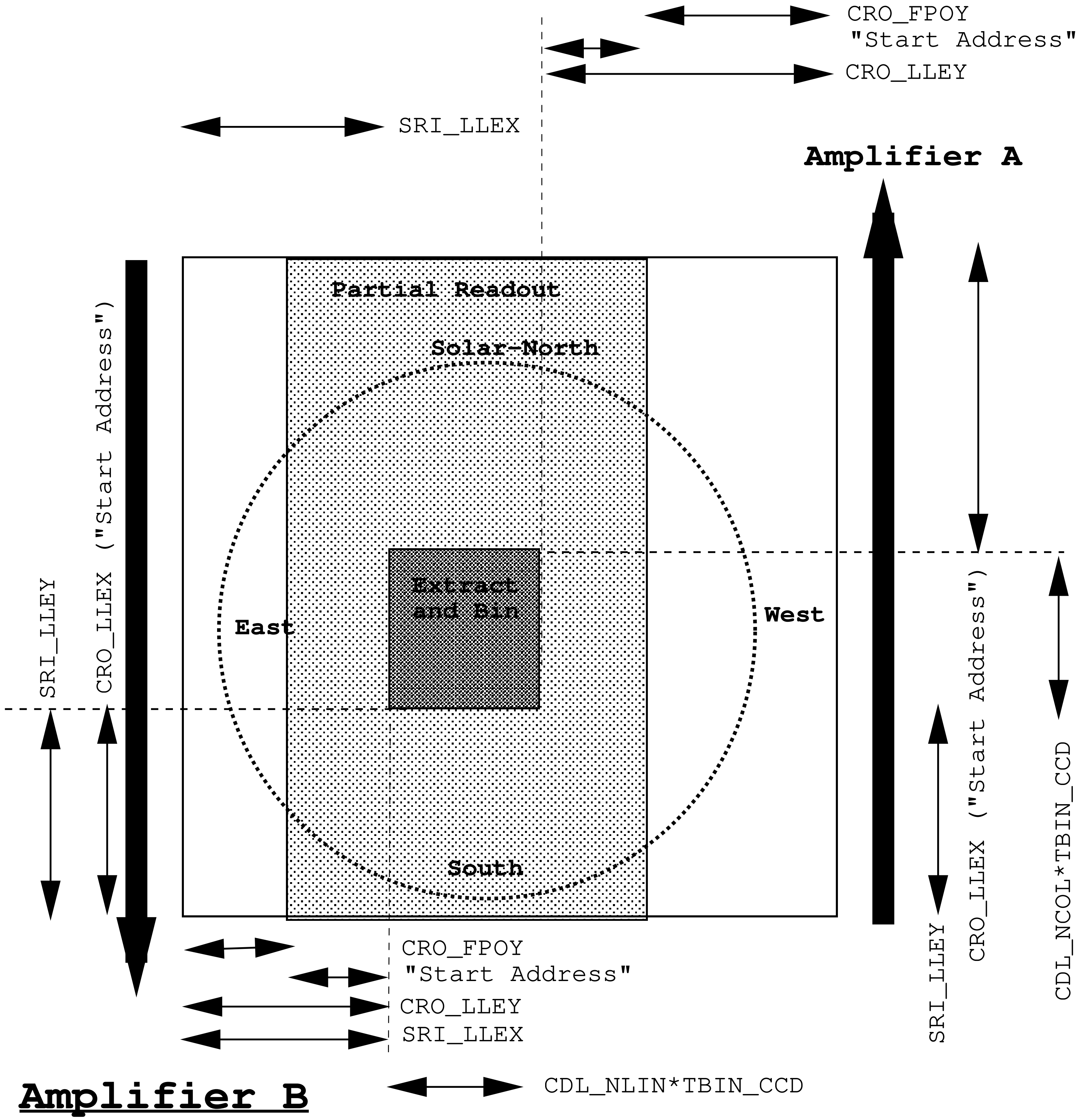
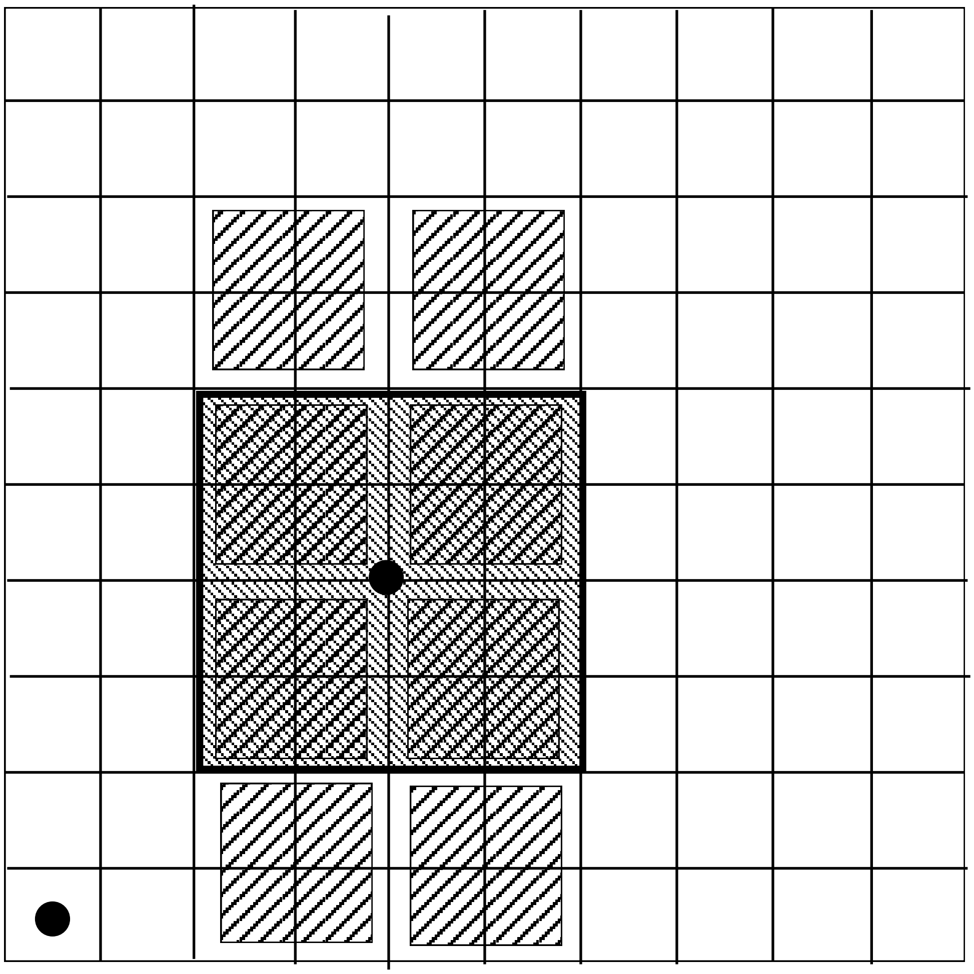



```
CRO_LLE
    X = (start_addr - 1292) mod rowlen - 8         (252 ccd header+1040 first line=1292 - 8 bls)
    Y = CRO_FPOY  + (start_addr - 1292)/rowlen      (note: CRO_LLE includes ccd summing)
SRI_LLE (Amp A)                                    (SUM_CCD = SUM_CCDX = SUM_CCDY)
    X = 1024 - CDL_NLIN*TBIN_CCD - (CRO_LLEY*SUM_CCD) + (TBIN_CCD - 1)*0.5
    Y = 1024 - CDL_NCOL*TBIN_CCD - (CRO_LLEX*SUM_CCD) + (TBIN_CCD - 1)*0.5
SRI LLE (Amp B)
    X = (CRO_LLEY*SUM_CCD) + (TBIN_CCD - 1)*0.5
    Y = (CRO_LLEX*SUM_CCD) + (TBIN_CCD - 1)*0.5
```

MDM V1.0 12-Mar-98; RWN V1.1 24-Feb-00

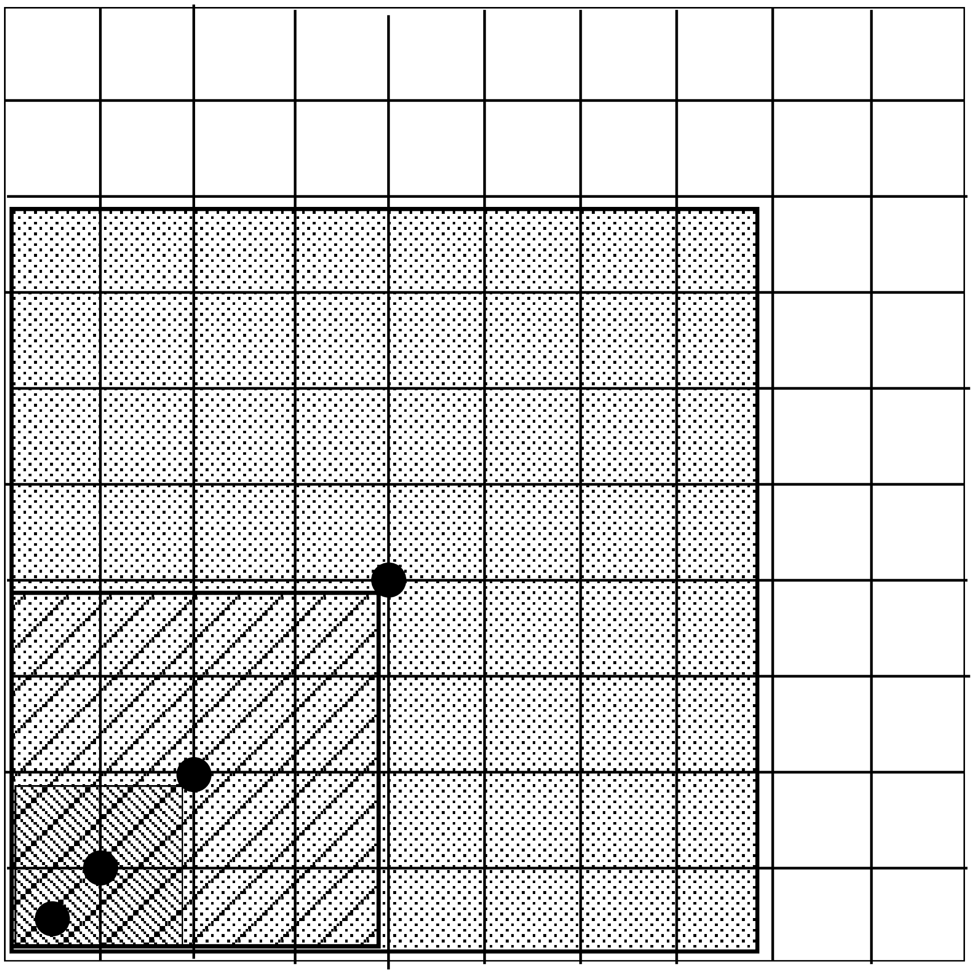


(0,0)

When calculating pixel coordinates for bin or sum images, the CRO coordinates include ccd summing and have to be moved back to the coordinate of the lower-left full resolution pixel before being binned and/or summed.

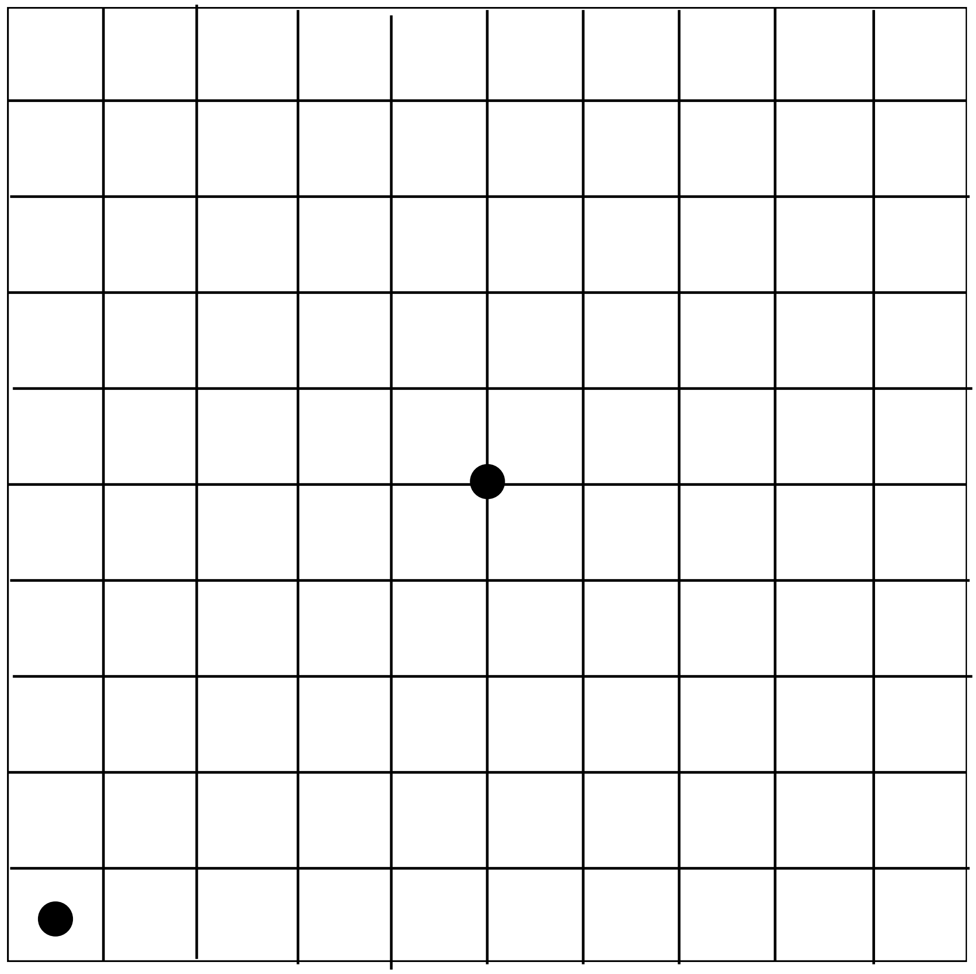
When making calculations based on the CDL_NCOL/CDL_NLIN values, move back 1 full binned/summed pixel (which appears to have been included in '1024').

MDM V1.0 12-Mar-98; RWN V1.1 24-Feb-00




```
On chip summing, means CRO_FPO in full pixel units has to be adjusted by
              1x1 = 0
              2x2 = 0.5 pixels
              4x4 = 1.5 pixels
              8x8 = 3.5 pixels
Shift = (NPIX-1)/2 = (TBIN_CCD - 1)*0.5
```

```
Coordinate systems:
  Camera Readout ("CRO") is Summed Pixel Readout
  Full Resolution Solar Rotated Image is "SRI"
```



(x0,y0)

The center of the image pixel location in units of full-resolution pixels is
x0 + (nx-1)/2 * TBIN_CCD (= SRI_LLEX + (NX-1)/2. * TBIN_CCD = SRI_FOVX)