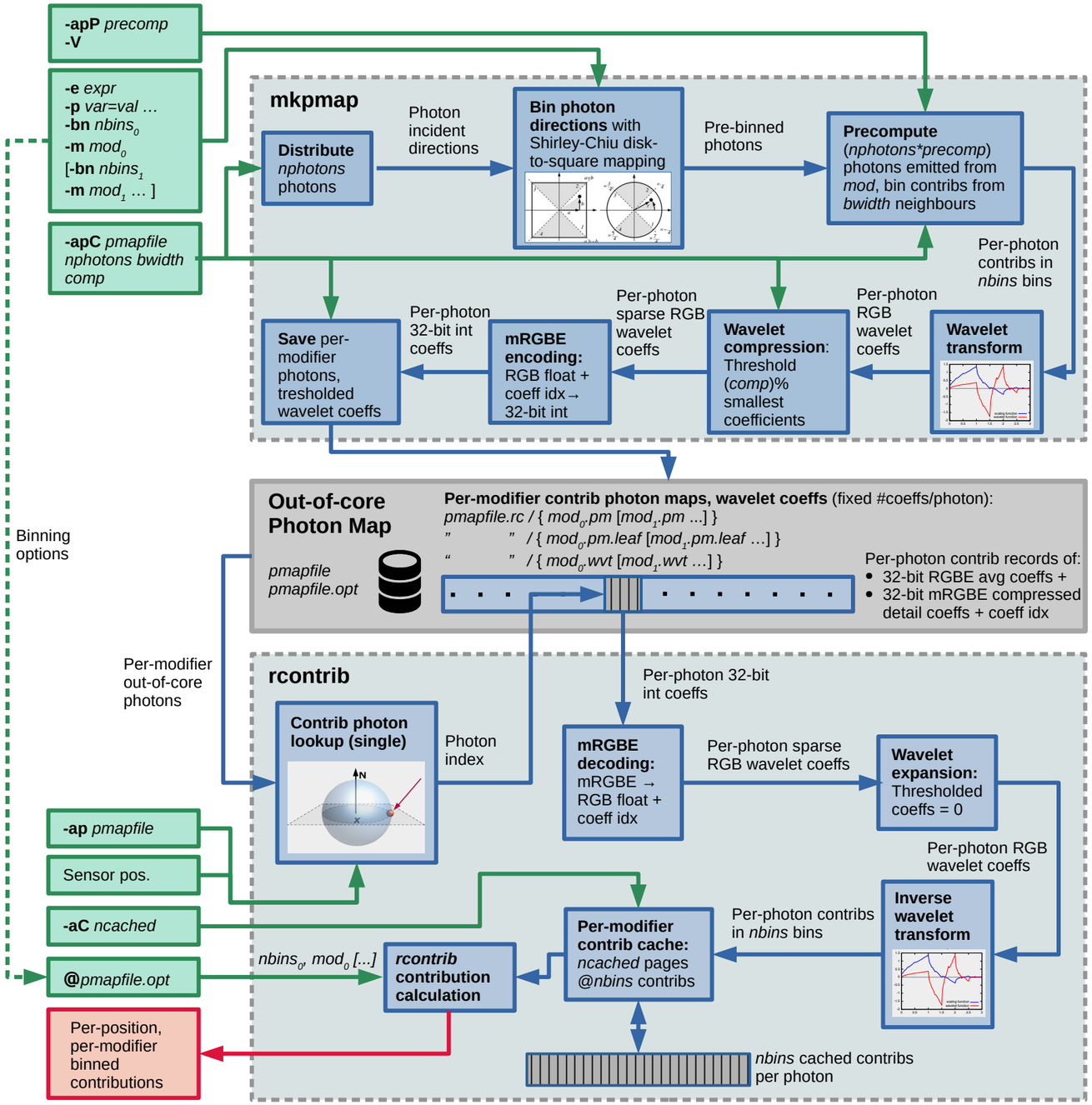
-apP precomp
-V
-e expr
-p var=val …
-bn nbins0
-m mod0
[-bn nbins1
-m mod1 …]
-apC pmapfile nphotons bwidth comp
mkpmap
Distribute nphotons photons
Photon incident directions
Bin photon directions with Shirley-Chiu disk-to-square mapping
Pre-binned photons
Precompute (nphotons*precomp) photons emitted from mod, bin contribs from bwidth neighbours
Per-photon contribs in nbins bins
Save per-modifier photons, tresholded wavelet coeffs
Per-photon 32-bit int coeffs
mRGBE encoding: RGB float + coeff idx → 32-bit int
Per-photon sparse RGB wavelet coeffs
Wavelet compression: Threshold (comp)% smallest coefficients
Per-photon RGB wavelet coeffs
Wavelet transform
Binning options
Out-of-core Photon Map
pmapfile
pmapfile.opt
Per-modifier contrib photon maps, wavelet coeffs (fixed #coeffs/photon):
pmapfile.rc / { mod0.pm [mod1.pm ...] }
" " / { mod0.pm.leaf [mod1.pm.leaf …] }
" " / { mod0.wvt [mod1.wvt …] }
Per-photon contrib records of:
• 32-bit RGBE avg coeffs +
• 32-bit mRGBE compressed detail coeffs + coeff idx
Per-modifier out-of-core photons
rcontrib
Contrib photon lookup (single)
Photon index
Per-photon 32-bit int coeffs
mRGBE decoding: mRGBE → RGB float + coeff idx
Per-photon sparse RGB wavelet coeffs
Wavelet expansion: Thresholded coeffs = 0
Per-photon RGB wavelet coeffs
-ap pmapfile
Sensor pos.
-aC ncached
@pmapfile.opt
nbins0, mod0 [...]
rcontrib contribution calculation
Per-modifier contrib cache: ncached pages @nbins contribs
Per-photon contribs in nbins bins
Inverse wavelet transform
Per-position, per-modifier binned contributions
nbins cached contribs per photon