**Text Description**

YCgCo :

The forward conversion:

Cg = R − B

t = B + (Cg >> 1)

Co = G − t

t = Round (t + (Co >>1)) :

Cg = Round (Cg >> 1)

Co = Round (Co >> 1)

t = Round (t)

Y = Clip3\_FVDO (t)

Co = Clip3\_FVDO (Co + (1 << (BitDepthC – 1)))

Cg = Clip3\_FVDO (Cg + (1 << (BitDepthC – 1)))

The inverse conversion for the above three equations should be computed as:

t = Y – (Co – (1 << (BitDepthC – 1)))

G = Clip3\_FVDO (t +2\* (Co − (1 << ( BitDepthC – 1))))

B = Clip3\_FVDO (t − (Cg − (1 << ( BitDepthC – 1))))

R = Clip3\_FVDO (t + (Cg − (1 << ( BitDepthC – 1))))

YFbFr :

The forward conversion:

Fr = R − B

t = B + (Fr >> 1)

Fb = G − t

t = t + ((3\*Fb) >> 3) :

Y = Clip3\_FVDO (t)

Fr = Clip3\_FVDO (Fr + (1 << (BitDepthC – 1)))

Fb = Clip3\_FVDO (Fb + (1 << (BitDepthC – 1)))

The inverse conversion for the above three equations should be computed as:

t = Y – (3\*(Fb – (1 << (BitDepthC – 1))) >> 3)

G = Clip3\_FVDO (t +2\* (Fb − (1 << ( BitDepthC – 1))))

B = Clip3\_FVDO (t − (Fr − (1 << ( BitDepthC – 1))))

R = Clip3\_FVDO (t + (Fr − (1 << ( BitDepthC – 1))))

YFbFrv2 :

The forward conversion:

Fr = R − B

t = B + (Fr >> 1)

Fb = G − t

t = t + ((5\*Fb) >> 3) :

Y = Clip3\_FVDO (t)

Fr = Clip3\_FVDO (Fr + (1 << (BitDepthC – 1)))

Fb = Clip3\_FVDO (Fb + (1 << (BitDepthC – 1)))

The inverse conversion for the above three equations should be computed as:

t = Y – (5\*(Fb – (1 << (BitDepthC – 1))) >> 3)

G = Clip3\_FVDO (t +2\* (Fb − (1 << ( BitDepthC – 1))))

B = Clip3\_FVDO (t − (Fr − (1 << ( BitDepthC – 1))))

R = Clip3\_FVDO (t + (Fr − (1 << ( BitDepthC – 1))))

YFbFrv3 :

The forward conversion:

Fr = R − B

t = B + (Fr >> 1)

Fb = G − t

t = t + ((23\*Fb) >> 5) :

Y = Clip3\_FVDO (t)

Fr = Clip3\_FVDO (Fr + (1 << (BitDepthC – 1)))

Fb = Clip3\_FVDO (Fb + (1 << (BitDepthC – 1)))

The inverse conversion for the above three equations should be computed as:

t = Y – (23\*(Fb – (1 << (BitDepthC – 1))) >> 5)

G = Clip3\_FVDO (t +2\* (Fb − (1 << ( BitDepthC – 1))))

B = Clip3\_FVDO (t − (Fr − (1 << ( BitDepthC – 1))))

R = Clip3\_FVDO (t + (Fr − (1 << ( BitDepthC – 1))))

**Macro Functions**

Clip3\_FVDO( MinVal, MaxVal, a) ( ((a)<(MinVal)) ? (MinVal) : (((a)>(MaxVal)) ? (MaxVal) :(a)) )

Sign(Val) ((Val < 0) ? -1 : ((Val > 0) ? 1 : 0))

Floor(x) ((Int)(x))

Abs(x) ((x >= 0) ? x : -x)

Round(x) (Sign(x)\*Floor(Abs(x) + 0.5))