Popular Built-in VEX Attributes (Global Variables)

ENTAGMA

General

type	*name*	*description*
int	@ptnum	Point Number
int	@numpt	Total number of points
float	@Time	Current time, in seconds
float	@TimeInc	Time increment per frame in seconds
float	@Frame	Current frame
int	@primnum	Primitive Number
int	@numprim	Total number of primitives
int	@vtxnum	Vertex number
int	@numvtx	Total number of vertices

Geometry

vec3	@P	Point/Primitive Position
vec3	@N	Point/Primitive/Vertex Normal
vec3	@v	Velocity (e.g. for motion blur / in particle systems)
float	@pscale	Uniform scale. Used in copy-SOP or particle systems
vec3	@scale	Non-Uniform scale. For use see pscale
vec3	@up	Up-Vector. Used together with @N to orient point/particle/instance
vec4	@orient	Quaternion defining the rotation of a point/particle/instance
vec4	@rot	Quaternion defining additional rotation
vec3	@trans	Translation of instance
matrix	@transform	Transformation matrix (used e.g. in Copy-SOP)
vec3	@pivot	Local pivot point for instance
float	@lod	Detail/Primitive Level of detail
vec3	@rest	Rest position
vec3	@force	Force (e.g. acting on particle)
float	@age	Particle Age
float	@life	Max. Particle Life

Volumes

float	@density	Density of voxel
int	@ix, @iy, @iz	Voxel indices along each axis. Ranging from 0 to resolution-1
vec3	@center	Center of current Volume
vec3	@orig	Bottom left corner of current Volume
vec3	@size	Size of current Volume
vec3	@dPdx	Change in position to get from one voxel to the next in x direction
vec3	@dPdy	Change in position to get from one voxel to the next in y direction
vec3	@dPdz	Change in position to get from one voxel to the next in z direction
vec3	@BB	relative position inside bounding box. Ranging from {0,0,0} to {1,1,1}

Shading

vec3	@Cd	Diffuse Color
float	@Alpha	Alpha transparency
vec3	@uv	Point/Vertex UV coordinates
vec3	@Cs	Specular Color
vec3	@Cr	Reflective Color
vec3	@Ct	Transmissive Color
vec3	@Ce	Emissive Color
float	@rough	Roughness
float	@fresnel	Fresnel coefficient
float	@shadow	Shadow intensity
float	@sbias	Shadow bias

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Used As Instancing Point Attribute in Copy-To-Point-SOP

type	*name*	*description*
vec3	@P	Instance Position
float	@pscale	Uniform scale
vec3	@scale	Non-Uniform scale
vec3	@N	Normal (+Z axis of the copy, if no orient)
vec3	@up	Up-Vector. Used together with @N to orient instance (+Y axis of the copy, if no orient)
vec4	@orient	Quaternion defining the rotation of a point/particle/instance
vec4	@rot	Quaternion defining additional rotation (applied after @orient)
vec3	@v	Velocity (motion blur, also used as +Z axis of the copy if no orient or N is present)
vec3	@trans	Translation of instance
matrix	@transform	Transformation matrix (used e.g. in Copy-SOP)
vec3	@pivot	Local pivot point for instance