Python API Summary

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SYNOPSYS®

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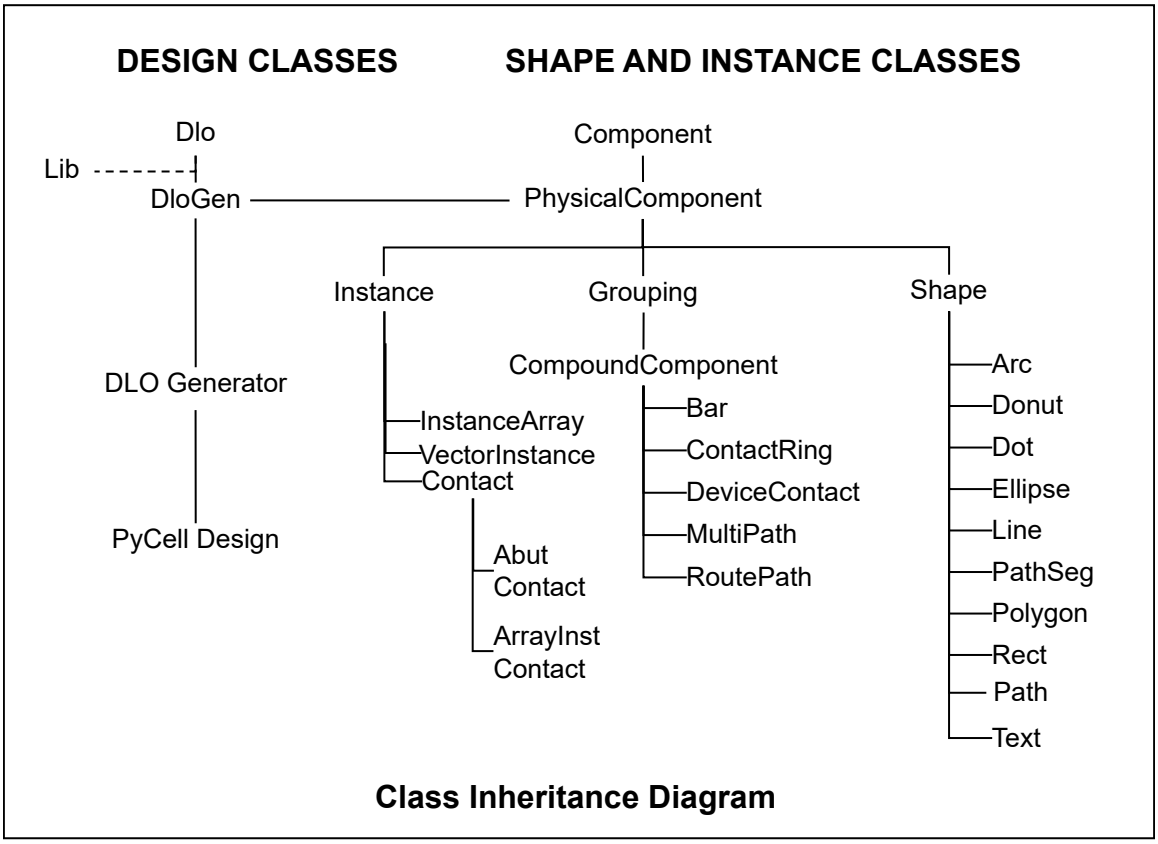
Class Organization



Class Inheritance Diagram

Technology Classes

Grid, Layer, LayerMaterial, PhysicalRule, RuleProperty, ShapeFilter, Tech

Connectivity Classes

BundleNet, BundleTerm, BusNet, BusTerm, InstPin, InstTerm, Net, Pin, RouteTarget, ShapeRef, SignalType, Term, TermType, Topology

Basic Geometric Classes

Box, Direction, Font, GapStyle, Location, Orientation, PathStyle, Point, Range, Segment, Transform

Feedback

Utility Classes

AttrDict, CDF, cFloat, CrossOver, DPL,, DrcSummary, Fill, Grid, Log, Marker, NameMapper, Numeric, OrderedDict, ParamArray, ParamDictSpec, ParamSpecArray, PointList, PropSet, SnapType, Unique, ViaParam

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Class Methods

Design Classes

Dlo

exists(), findComp(), findCompRef(), findPin(), findTerm(), getBBox(), getCellType(), getComps(), getLeafComps(), getLib(), getLpps(), getName(), getParams(), getPins(), getProps(), getTermOrder(), getTerms(), getViewType(), isSubMaster(), isSuperMaster(), save(), saveAs(), setCustomLocation(), setTermOrder()

DloGen

addPin(), addTerm(), currentDloGen(), dbu2uu(), dbu2uuArea(), fgAnd(), fgDeriveLayer(), fgNot(), fgOr(), fgSize(), fgXor(), getComp(), getInsts(), getNets(), getShapes(), makeCompName(), makeGrouping(), makeNetName(), makePinName(), makePinNameSpecNum(), makeTermName(), mirrorX(), mirrorY(), moveBy(), moveTo(), moveTowards(), rotate90(), rotate180(), rotate270(), setOrigin(), transform(), uu2dbu(), uu2dbuArea(), withNewDlo()

PyCell author provided methods:

defineParamSpecs(), genLayout(), genTopology(), setupParams(), sizeDevices()

Lib

attachTechLib(), close(), create(), definePcell(), getName(), getPath(), getProps(), getTech(), getTechFilePath(), getTechLibName(), installTechFile(), loadPcells(), open(), updatePcell()

Shape and Instance Classes

PhysicalComponent

abut(), alignEdge(), alignEdgeToPoint(), alignLocation(), alignLocationToPoint(), clone(), destroy(), find(), fgAbut(), fgAddEnclosingPolygon(), fgAnd(), fgDeriveLayer(), fgEnclose(), fgExtend(), fgFill(), fgMerge(), fgMinSpacing(), fgNot(), fgOr(), fgPlace(), fgSize(), fgXor(), getBBox(), getCompOwner(), getDlo(), getLocationPoint(), getName(), getProps(),

Feedback

getSpacing(), keepRelativePosition(), makeArray(), mirrorX(), mirrorY(), moveBy(), moveTo(), moveTowards(), overlaps(), place(), rotate90(), rotate180(), rotate270(), setCustomLocation(), setName(), snap(), snapX(), snapY(), snapTowards(), transform()

Instance

clone(), find(), findInstPin(), findInstTerm(), flatten(), getBit(), getCompRefs(), getDefaultParams(), getDloName(), getInstPins(), getInstTerms(), getMaster(), getName(), getNumBits(), getOrientation(), getOrigin(), getParams(), getParamSpecs(), getTransform(), instPin(), setConnectivity(), setMaster(), setName(), setOrientation(), setOrigin(), setParams(), setTransform()

VectorInstance

clone(), find(), flatten(), getBaseName(), getBit(), getCompRefs(), getNumBits(), getStartIndex(),getStopIndex(),setBaseName(),setIndexRange()

InstanceArray

clone(), find(), flatten(), getCompRefs(), getDX(), getDY(), getMemberBBox(), getMemberRefs(), getMemberTransform(), getNumCols(), getNumRows(), setDX(), setDY(), setName(), setNumCols(), setNumRows()

Contact

clone(), getLayer1(), getLayer2(), getLayers(), getNumCuts(), getNumHVCuts(), getRefBox(), setMinCuts(), stretch(), stretchTo(), stretchToCoord()

AbutContact

clone(), setAbutViaSpaceFactor()

ArrayInstContact

clone()

ContactRing

chop(), clone(), getContact()

Grouping

find(), add(), clone(), destroy(), flatten(), getBBox(), getComp(), getComps(), getLeafComps(), getName(), isPersistent(), makePersistent(), mirrorX(), mirrorY(), moveBy(), moveTo (), moveTowards(), remove(), rotate90(), rotate180(), rotate270(), setName(),transform(),ungroup()

Feedback

CompoundComponent

clone(), destroy(), flatten(), isLocked(), lock(), mirrorX(), mirrorY(), moveBy(), moveTo(), moveTowards(), rotate90(), rotate180(), rotate270(), snap(), snapX(), snapY(), snapTowards(),transform(),ungroup(),unlock()

Bar

addContact(), clearContacts(), clone(), extendTo(), getContacts(), getDirection(), getLayer(), getRect(), getRoutePathIntersectBox(), stretchTo(), stretchToCoord(), trim()

DeviceContact

clone(), getLayer1(), getLayer2(), getNumHVCuts(), getRect1(), getRect2(), getViaBBox(), getViaLayer(), stretch(), stretchToCoord(), stretchToPoint()

MultiPath

clone(), createEnclosureSubpath(), createOffsetSubpath(), createSubrectangles(), genJustifyPathPoints(), getChoppedSubpathPointLists(), getMasterPathName(), getSubpathPoints(), mirrorX(), mirrorY(), moveBy(), moveTo(), moveTowards(), rotate90(), rotate180(), rotate270(), snap(), setChopBoxes(), setChoppable(), snapX(), snapY(), snapTowards(), transform()

RoutePath

Connect(), CShape(), FlightLine(), LShape(), StraightLine(), StraightLineToBar(), ZShape(), checkLayerWidth(), clone(), findAdjacentInterconnectLayer (), getLayer()

PRBoundary

find(), getBBox(), getEdgeNames(), getNumEdges(), getPoints(), setEdges()

Shape Classes

getBBox(), getColorMask(), getLayer(), getName(), getNet(), getPin(), setColorMask(), setLayer(), setName(), setNet()

Arc

Arc(), clone(), getEllipseBBox(), getStartAngle(), getStopAngle(), setEllipseBBox(), setStartAngle(), setStopAngle()

Donut

Donut(), clone(), getCenter(), getEndAngle(), getHoleBBox(), getHoleRadius(), getRadius(), getStartAngle(), setAngles(), setCenter(), setEndAngle(), setHoleRadius(), setRadius(), setStartAngle()

Dot

Dot(), clone(), getHeight(), getOrigin(), getWidth(), setHeight(), setOrigin(), setWidth()

Ellipse

Ellipse(), clone(), genPolygonPoints(), getEndAngle(), getStartAngle(), setAngles(), setBBox(), setEndAngle(), setStartAngle()

Line

Line(), clone(), getNumPoints(), getPoints(), setPoints()

Path

Path(), clone(), getBeginExt(), getBoundary(), getEdgeLength(), getEndExt(), getNumPoints(), getPoints(), getStyle(), getWidth(), isOrthogonal(), setBeginExt(), setEndExt(), setPoints(), setStyle(), setWidth()

PathSeg

PathSeg(),clone(), getBoundary(), getPoints(), getWidth(), isOrthogonal(), setPoints(), setWidth()

Polygon

Polygon(), clone(), getEdgeLength(), getNumPoints(), getPoints(), isOrthogonal(), setPoints(), subdivide()

Rect

Rect(), clone(), expand(), expandDir(), expandToGrid(), fillBBoxWithRects(), fillDiagBoxWithDiagRects(), fillDiagBoxWithRects(), getBottom(), getCoord(), getHeight(), getLeft(), getRight(), getTop(), getWidth(), setBBox(), setBottom(), setCoord(), setLeft(), setRight(), setTop()

Text

Text(), clone(), getAlignment(), getHeight(), getOrientation(), getOrigin(), getText(), hasOverbar(), isDrafting(), isVisible(), setAlignment(), setDrafting(), setHeight(), setOrientation(), setOrigin(), setOverbar(), setText(), setVisible()

AttrDisplay

getAttribute(), getObject()

Via

getBBox(), getColorMask(), getLayer1(), getLayer2(), getMaster(), getName(), getNet(), getOrientation(), getOrigin(), getTransform(), getViaDefName(), setColorMask(), setName(), setNet(), setOrientation(), setOrigin(), setTransform()

StdVia

getCutLayer(), getImplantLayer1(), getImplantLayer2(), getParams(), setParams()

CustomVia

getParams(), setParams()

ViaDef

getName(), getLayer1(), getLayer2()

StdViaDef

getImplantLayer1(), getImplantLayer2(), getParams()

CustomViaDef

getLibName(), getCellName(), getViewName(), getParams()

PhysicalCompRef

abut(),alignEdge(),alignEdgeToCoord(),alignEdgeToPoint(),alignLocation(), alignLocationToPoint(),getBBox(),getLocationPoint(), getName(), getParentPathName(), getParentPathTransform(), getPathName(), getProps(), getSpacing(), getTopInst(), keepRelativePosition(), mirrorX(), mirrorY(), moveBy(), moveTo(), moveTowards(), overlaps(), place(), rotate90(), rotate180(), rotate270(), snap(), snapTowards(), snapX(), snapY(), transform()

GroupingRef

getCompRefs()

InstanceRef

getCompRefs(), getMaster(), getParams()

InstanceArrayRef

getMemberRefs()

VectorInstanceRef

getCompRefs()

ShapeRef

getBBox(), getInst(), getInstPin(), getLayer(), getName(), getNetRef(), getPinRef(), getTransform()

TextRef

getText()

Feedback

Basic Geometric Classes

Point

areColinearPoints(), copy(), getCoord(), getSpacing(), getX(), getY(), isBetween(), invalid(), isValid(), place(), set(), setCoord(), setX(), setY(), snap(), snapX(), snapY(), snapTowards(), toDiagAxes(), toOrthogAxes(), transform()

Range

alignEdge(), alignEdgeToCoord(), compareTrueCenter(), contains(), containsCoord(), expand(), expandDir(), findAlignEdgeOffset(), fitSubranges(), fix(), getCenter(), getCoord(), getLeft(), getRight(), getWidth(), hasNoWidth(), init(), intersect(), isInverted(), isNormal(), limit(), merge(), mergeCoord(), moveBy(), overlaps(), removeRegion(), set(), setCenter(), setCoord(), setDimension(), setLeft(), setRight(), setWidth()

Segment

addOffsets(), contains(), containsPoint(), extrapIntersect(), genJustifySegment(), getDeltaX(), getDeltaY(), getDir(), getHead(), getPosition(), getTail(), hasIntersection(), intersect(), isCoincident(), isHorizontal(), isOrthogonal(), isParallel(), isVertical(), moveBy(), reverse(), set(), setHead(), setTail(), transform()

Box

abut(), alignEdge(), alignEdgeToCoord(),alignEdgeToPoint(), alignLocation(), alignLocationToPoint(), centerLeft(), centerRight(), centerCenter(), contains(), containsPoint(), expand(), expandDir(), expandForMinArea(), expandForMinWidth(), expandToGrid(), fix(), getArea(), getBottom(), getCenter(), getCenterX(), getCenterY(), getCoord(), getDimension(), getHeight(), getLeft(), getLocationPoint(), getPoints(), getRange(), getRangeX(), getRangeY(), getRight(), getSpacing(), getTop(), getWidth(), hasNoArea(), init(), intersect(), isInverted(), isNormal(), limit(), lowerCenter(), lowerLeft(), lowerRight(), merge(), mergePoint(), mirrorX(), mirrorY(), moveBy(), moveTo(), moveTowards(), overlaps(), place(), removeRegion(),rotate90(), rotate180(), rotate270(), set(), setBottom(), setCenter(), setCenterX(), setCenterY(), setCoord(), setDimension(), setHeight(), setLeft(), setLocationPoint(), setRange(), setRangeX(), setRangeY(), setRight(), setTop(), setWidth(), snap(), snapX(), snapY(), snapTowards(), transform(), upperCenter(), upperLeft(), upperRight()

Direction

containsComponent(), extend(), getJustifiedDir(), getMembers(), getPrimaryDirs(), is1Dimension(), isHalfLine(), isFullLine(), isPrimary(), isXDir(), isYDir(), mapXDirToYDir(), mapYDirToXDir(), mirrorX(), mirrorY(), opposite(), perpendicular(), rotate90(), rotate180(), rotate270(), transform()

Feedback

Location

mirrorX(), mirrorY(), rotate90(), rotate180(), rotate270(), transform()

Orientation

concat(), getRelativeOrient()

Transform

concat(), invert(), mirrorX(), mirrorY(), rotate90(), rotate180(), rotate270()

Technology Classes

Layer

getAttrs(), getGridResolution(), getLayerAbove(), getLayerBelow(), getLayerName(), getLayerNumber(), getMaterial(), getPurposeName(), getPurposeNumber(), getRoutingDir(), isAbove(), isMaskLayer()

LayerMaterial

include()

ShapeFilter

exclude(), excludeTexts(), include(), isIncluded()

DeviceContext

getLayers(), getName(), getRuleSubstitutions(), isEmpty()

Ruleset

getAncestor(), getName()

Tech

conditionalRuleExists(), dbu2uu(), dbu2uuArea(), deviceContextExists(), electricalRuleExists(), get(), getActiveDeviceContext(), getActiveRuleset(), getCustomViaDef(), getCustomViaDefNames(), getDeviceContexts(), getElectricalRule(), getGridResolution(), getIntermediateLayers(), getLayer(), getMaskColorNames(), getMosfetParams(), getOxideParams(), getPhysicalRule(), getRulesets(), getSantanaLayerNames(), getSantanaPurposeNames(), getStdViaDef(), getStdViaDefNames(), getTechParams(), getUserUnits(), getValidLayers(), id(), name(), physicalRuleExists(), revision(), rulesetExists(), uu2dbu(),uu2dbuArea(), version()

Feedback

Point List Geometry Operations

Point List Geometry Methods

poAnd(), poInside(), poNot(), poOr(), poOutside(), poSize(), poStraddle(), poXor()

Collection

addPointLists(), addPointListsByObjects(), createPointListsToShapes(), getPointLists()

Connectivity Classes

Net

addShape(), destroy(), find(), findCreate(), getBit(), getName(), getNumBits(), getShapes(), getSignalType(), getInstPins(), getInstTerms(), getPins(), getTerm(), getVias(), isGlobal(), removeShape(), setGlobal(), setName(), setNetOverride(), setSignalType()

BusNet

find(), getBaseName(), getBit(), getIndexStep(), getNumBits(), getStartIndex(), getStopIndex(), setBaseName(), setIndexRange()

BundleNet

find(), getMember(), getMembers(), getName(), getNumMembers(), getRepeat()

Pin

addInstPin(),addShape(), destroy(), find(), getAccessDir(), getAuthorPrefLayer(), getBBox(), getLayers(), getName(), getNet(), getPrefLayer(), getPrefLayerPropName(), getShapes(), getTerm(), getTopLayer(), removeShape(), setAccessDir(), setAuthorPrefLayer(), setName(), setTerm()

Term

destroy(), find(), findCreate(), getBit(), getMustJoinTerms(), getName(), getNet(), getNumBits(), getPins(), getTermType(), setMustJoin(), setName(), setNetOverride(), setTermType()

BusTerm

find(), getBaseName(), getBit(), getIndexStep(), getNumBits(), getStartIndex(), getStopIndex(), setBaseName(), setIndexRange()

BundleTerm

find(), getMember(), getMembers(), getName(), getNumMembers()

Feedback

InstPin

find(), getAuthorPrefLayer(), getBBox(), getInst(), getInstTerm(), getLayers(), getNet(), getPinAccessDir(), getPinName(), getPrefLayer(), getShapeRefs(), getTermName(), getTermType(), getTopLayer()

InstTerm

find(), findInstPin(), getBit(), getInst(), getInstPins(), getMustJoinInstTerms(), getNet(), getNumBits(), getTermName(), getTermType(), setNet()

Topology

getName(), setName()

RouteTarget

getBBox(), getChosenAccessDir(), getChosenAccessPoint(), getChosenBox(), getChosenLayer(), getLayers(), getName(), getPrefLayer(), getRoutePathIntersectBox(), getRoutePathLayer(), hasLayer(), isSingleBox(), isValid(), needsContact()

Connectivity Reference Classes

BlockObjectRef

getProps()

NetRef

getBit(), getName(), getNumBits(), getPinRefs(), getShapeRefs(), getSignalType(), getTermRef(), getViaRefs(), isGlobal()

TermRef

getName(), getNetRef(), getPinRefs(), getTermType()

PinRef

getAccessDir(), getName(), getNetRef(), getShapeRefs(), getTermRef()

Utility Classes

ParamArray

add(), get(), has_key(), iteritems(), iterkeys(), itervalues(), remove(), reset(), set(), setFromSpecs(), update()

ParamSpecArray

add(), has_key(), iteritems(), iterkeys(), itervalues(), verify()

ViaParam

hasDefault(), items(), iteritems(), keys(), iterkeys(), setDefault()

PropSet

clear(), empty(), get(), getProp(), has_key(), items(), iteritems(), iterkeys(), itervalues(), keys(), update(), values()

PointList

addOffsets(), compress(), containsPoint(), copy(), deepcopy(), genJustifyPoints(), getArea(), getBBox(), hasExtraPoints(), isOrthogonal(), isSelfIntersecting(), mirrorX(), mirrorY(), moveBy(), moveTo(), moveTowards(), onEdge(), rotate90(), rotate180(), rotate270(), transform()

Log

debug(), error(), info(), test(), warning()

Unique

Name()

NameMapper

map()

Grid

getSize(), getSnapType(), getXSize(), getYSize(), setSize(), setSnapType(), setXSize(), setYSize(), snap(), snapX(), snapY()

SnapType

snap(), ceil(), floor(), round(), round_ceil(), trunc()

Fill

fillPhysCompWithInstArrays(), fillPhysCompWithLargeArraysOfInstArrays(),fillPhysCompWithLargeArraysOfRects(), fillPhysCompWithRects()

Numeric

scaleFormat()

Feedback

CDF

forCell()

AttrDict

clear(), get(), has_key(), items(), iteritems(), iterkeys(), itervalues(), keys(), pop(), popitem(), setdefault(), update(), values()

OrderedDict

clear(), copy(), index(), insert(), items(), iteritems(), iterkeys(), itervalues(), keys(), pop(), popitem(), rename(), reverse(), setdefault(), setitems(), setkeys(), setvalues(), sort(), update(), values()

ParamDictSpec

match(), optional(), required()

CrossOver

genPath1Polygon(), genPath2Polygon(), getDistance(), getPath1Extends(), getPath1Points(), getPath2Extends(), getPath2Points(), getSpace(), getWidth1(), getWidth2(), getWidth45(), set()

Marker

addObject(), clone(), getBBox(), getMsg(), getObjects(), getPoints(), getSeverity(), getShortMsg(), getTool(), isClosed(), isVisible(), setIsClosed(), setIsVisible(), setMsg(), setPoints(), setSeverity(), setShortMsg(), setTool(), removeObject()

DrcSummary

checkedRules(), errorNumber(), getRuleList(), totalErrorNumber()

AppDef

destroy(), get(), set()

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Global Functions

fgDrc(), stretchHandle(), stretchHandleCustom(), autoAbutment()