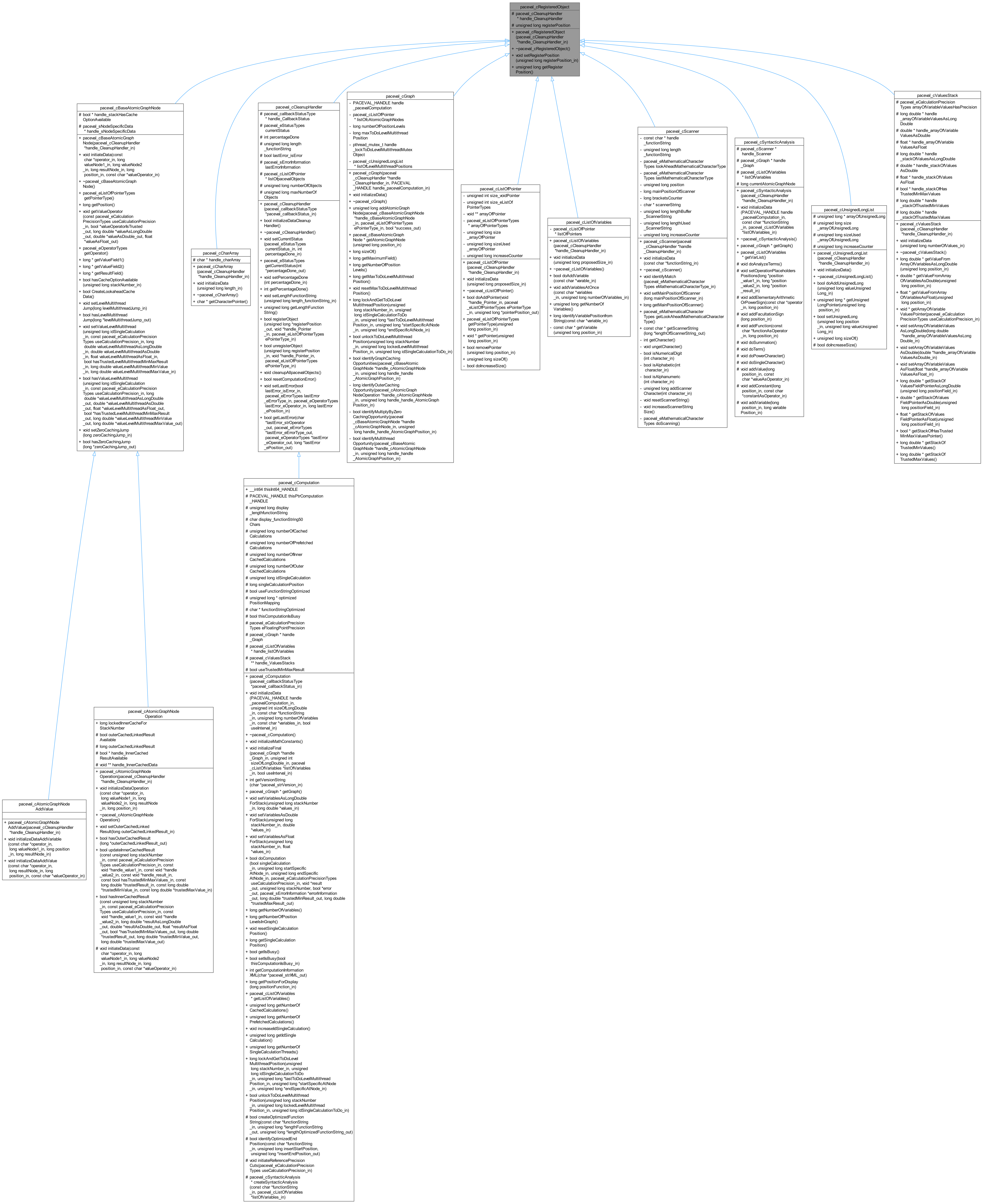
paceval_cRegisteredObject
paceval_cCleanupHandler * handle_CleanupHandler
unsigned long registerPosition
+ paceval_cRegisteredObject (paceval_cCleanupHandler *handle_CleanupHandler_in)
+ ~paceval_cRegisteredObject()
+ void setRegisterPosition (unsigned long registerPosition_in)
+ unsigned long getRegister Position()
paceval_cBaseAtomicGraphNode
bool * handle_stackHasCache OptionAvailable
paceval_sNodeSpecificData * handle_sNodeSpecificData
+ paceval_cBaseAtomicGraph Node(paceval_cCleanupHandler *handle_CleanupHandler_in)
+ void initiateData(const char *operator_in, long valueNode1_in, long valueNode2 _in, long resultNode_in, long position_in, const char *valueOperator_in)
+ ~paceval_cBaseAtomicGraph Node()
+ paceval_eListOfPointerTypes getPointerType()
+ long getPosition()
+ void getValueOperator (const paceval_eCalculation PrecisionTypes useCalculationPrecision _in, bool *valueOperatorIsTrusted _out, long double *valueAsLongDouble _out, double *valueAsDouble_out, float *valueAsFloat_out)
+ paceval_eOperatorTypes getOperator()
+ long * getValueField1()
+ long * getValueField2()
+ long * getResultField()
+ bool hasCacheOptionAvailable (unsigned long stackNumber_in)
+ bool CreateLookaheadCache Data()
+ void setLevelMultithread Jump(long levelMultithreadJump_in)
+ bool hasLevelMultithread Jump(long *levelMultithreadJump_out)
+ void setValueLevelMultithread (unsigned long idSingleCalculation _in, const paceval_eCalculationPrecision Types useCalculationPrecision_in, long double valueLevelMultithreadAsLongDouble _in, double valueLevelMultithreadAsDouble _in, float valueLevelMultithreadAsFloat_in, bool hasTrustedLevelMultithreadMinMaxResult _in, long double valueLevelMultithreadMinValue _in, long double valueLevelMultithreadMaxValue_in)
+ bool hasValueLevelMultithread (unsigned long idSingleCalculation _in, const paceval_eCalculationPrecision Types useCalculationPrecision_in, long double *valueLevelMultithreadAsLongDouble _out, double *valueLevelMultithreadAsDouble _out, float *valueLevelMultithreadAsFloat_out, bool *hasTrustedLevelMultithreadMinMaxResult _out, long double *valueLevelMultithreadMinValue _out, long double *valueLevelMultithreadMaxValue_out)
+ void setZeroCachingJump (long zeroCachingJump_in)
+ bool hasZeroCachingJump (long *zeroCachingJump_out)
paceval_cCharArray
char * handle_charArray
+ paceval_cCharArray (paceval_cCleanupHandler *handle_CleanupHandler_in)
+ void initializeData (unsigned long length_in)
+ ~paceval_cCharArray()
+ char * getCharacterPointer()
paceval_cCleanupHandler
paceval_callbackStatusType * handle_CallbackStatus
paceval_eStatusTypes currentStatus
int percentageDone
unsigned long length _functionString
bool lastError_isError
paceval_sErrorInformation lastErrorInformation
paceval_cListOfPointer * listOfpacevalObjects
unsigned long numberOfObjects
unsigned long maxNumberOf Objects
+ paceval_cCleanupHandler (paceval_callbackStatusType *paceval_callbackStatus_in)
+ bool initializeDataCleanup Handler()
+ ~paceval_cCleanupHandler()
+ void setCurrentStatus (paceval_eStatusTypes currentStatus_in, int percentageDone_in)
+ paceval_eStatusTypes getCurrentStatus(int *percentageDone_out)
+ void setPercentageDone (int percentageDone_in)
+ int getPercentageDone()
+ void setLengthFunctionString (unsigned long length_functionString_in)
+ unsigned long getLengthFunction String()
+ bool registerObject (unsigned long *registerPosition _out, void *handle_Pointer _in, paceval_eListOfPointerTypes ePointerType_in)
+ bool unregisterObject (unsigned long registerPosition _in, void *handle_Pointer_in, paceval_eListOfPointerTypes ePointerType_in)
+ void cleanupAllpacevalObjects()
+ bool resetComputationError()
+ void setLastError(bool lastError_isError_in, paceval_eErrorTypes lastError _eErrorType_in, paceval_eOperatorTypes lastError_eOperator_in, long lastError _ePosition_in)
+ bool getLastError(char *lastError_strOperator _out, paceval_eErrorTypes *lastError_eErrorType_out, paceval_eOperatorTypes *lastError _eOperator_out, long *lastError _ePosition_out)
paceval_cGraph
- PACEVAL_HANDLE handle _pacevalComputation
- paceval_cListOfPointer * listOfcAtomicGraphNodes
- long numberOfPositionLevels
- long maxToDoLevelMultithread Position
- pthread_mutex_t handle _lockToDoLevelMultithreadMutex Object
- paceval_cUnsignedLongList * listOfLevelMultithreadPositions
+ paceval_cGraph(paceval _cCleanupHandler *handle _CleanupHandler_in, PACEVAL _HANDLE handle_pacevalComputation_in)
+ void initializeData()
+ ~paceval_cGraph()
+ unsigned long addAtomicGraph Node(paceval_cBaseAtomicGraphNode *handle_cBaseAtomicGraphNode _in, paceval_eListOfPointerTypes ePointerType_in, bool *success_out)
+ paceval_cBaseAtomicGraph Node * getAtomicGraphNode (unsigned long position_in)
+ long sizeOf()
+ long getMaximumField()
+ long getNumberOfPosition Levels()
+ long getMaxToDoLevelMultithread Position()
+ void resetMaxToDoLevelMultithread Position()
+ long lockAndGetToDoLevel MultithreadPosition(unsigned long stackNumber_in, unsigned long idSingleCalculationToDo _in, unsigned long *lastToDoLevelMultithread Position_in, unsigned long *startSpecificAtNode _in, unsigned long *endSpecificAtNode_in)
+ bool unlockToDoLevelMultithread Position(unsigned long stackNumber _in, unsigned long lockedLevelMultithread Position_in, unsigned long idSingleCalculationToDo_in)
+ bool identifyGraphCaching Opportunities(paceval_cBaseAtomic GraphNode *handle_cAtomicGraphNode _in, unsigned long handle_handle _AtomicGraphPosition_in)
- long identifyOuterCaching Opportunity(paceval_cAtomicGraph NodeOperation *handle_cAtomicGraphNode _in, unsigned long handle_handle_AtomicGraph Position_in)
- bool identifyMultiplyByZero CachingOpportunity(paceval _cBaseAtomicGraphNode *handle _cAtomicGraphNode_in, unsigned long handle_handle_AtomicGraphPosition_in)
- bool identifyMultithread Opportunity(paceval_cBaseAtomic GraphNode *handle_cAtomicGraphNode _in, unsigned long handle_handle _AtomicGraphPosition_in)
paceval_cListOfPointer
- unsigned int size_voidPointer
- unsigned int size_eListOf PointerTypes
- void ** arrayOfPointer
- paceval_eListOfPointerTypes * arrayOfPointerTypes
- unsigned long size _arrayOfPointer
- unsigned long sizeUsed _arrayOfPointer
- unsigned long increaseCounter
+ paceval_cListOfPointer (paceval_cCleanupHandler *handle_CleanupHandler_in)
+ void initializeData (unsigned long proposedSize_in)
+ ~paceval_cListOfPointer()
+ bool doAddPointer(void *handle_Pointer_in, paceval _eListOfPointerTypes ePointerType _in, unsigned long *pointerPosition_out)
+ paceval_eListOfPointerTypes getPointerType(unsigned long position_in)
+ void * getPointer(unsigned long position_in)
+ bool removePointer (unsigned long position_in)
+ unsigned long sizeOf()
- bool doIncreaseSize()
paceval_cListOfVariables
- paceval_cListOfPointer * listOfPointers
+ paceval_cListOfVariables (paceval_cCleanupHandler *handle_CleanupHandler_in)
+ void initializeData (unsigned long proposedSize_in)
+ ~paceval_cListOfVariables()
+ bool doAddVariable (const char *varable_in)
+ void addVariablesAtOnce (const char *variables _in, unsigned long numberOfVariables_in)
+ unsigned long getNumberOf Variables()
+ long identifyVariablePositionfrom String(const char *variable_in)
- const char * getVariable (unsigned long position_in)
paceval_cScanner
- const char * handle _functionString
- unsigned long length _functionString
- paceval_eMathematicalCharacter Types lookAheadMathematicalCharacterType
- paceval_eMathematicalCharacter Types lastMathematicalCharacterType
- unsigned long position
- long mainPositionOfScanner
- long bracketsCounter
- char * scannerString
- unsigned long lengthBuffer _ScannerString
- unsigned long lengthUsed _ScannerString
- unsigned long increaseCounter
+ paceval_cScanner(paceval _cCleanupHandler *handle _CleanupHandler_in)
+ void initializeData (const char *functionString_in)
+ ~paceval_cScanner()
+ void identifyMatch (paceval_eMathematicalCharacter Types eMathematicalCharacterType_in)
+ void setMainPositionOfScanner (long mainPositionOfScanner_in)
+ long getMainPositionOfScanner()
+ paceval_eMathematicalCharacter Types getLookAheadMathematicalCharacter Type()
+ const char * getScannerString (long *lengthOfScannerString_out)
- int getCharacter()
- void ungetCharacter()
- bool isNumericalDigit (int character_in)
- bool isAlphabetic(int character_in)
- bool isAlphanumeric (int character_in)
- unsigned long addScanner Character(int character_in)
- void resetScannerString()
- void increaseScannerString Size()
- paceval_eMathematicalCharacter Types doScanning()
paceval_cSyntacticAnalysis
paceval_cScanner * handle_Scanner
paceval_cGraph * handle _Graph
paceval_cListOfVariables * listOfVariables
long currentAtomicGraphNode
+ paceval_cSyntacticAnalysis (paceval_cCleanupHandler *handle_CleanupHandler_in)
+ void initializeData (PACEVAL_HANDLE handle _pacevalComputation_in, const char *functionString _in, paceval_cListOfVariables *listOfVariables_in)
+ ~paceval_cSyntacticAnalysis()
+ paceval_cGraph * getGraph()
+ paceval_cListOfVariables * getVarList()
# void doAnalyzeTerms()
# void setOperationPlaceholders Positions(long *position _value1_in, long *position _value2_in, long *position _result_in)
# void addElementaryArithmetic OrPowerSign(const char *operator _in, long position_in)
# void addFacultationSign (long position_in)
# void addFunction(const char *functionAsOperator _in, long position_in)
# void doSummation()
# void doTerm()
# void doPowerCharacter()
# void doSingleCharacter()
# void addValue(long position_in, const char *valueAsOperator_in)
# void addConstant(long position_in, const char *constantAsOperator_in)
# void addVariable(long position_in, long variable Position_in)
paceval_cUnsignedLongList
unsigned long * arrayOfUnsignedLong
unsigned long size _arrayOfUnsignedLong
unsigned long sizeUsed _arrayOfUnsignedLong
unsigned long increaseCounter
+ paceval_cUnsignedLongList (paceval_cCleanupHandler *handle_CleanupHandler_in)
+ void initializeData()
+ ~paceval_cUnsignedLongList()
+ bool doAddUnsignedLong (unsigned long valueUnsigned Long_in)
+ unsigned long * getUnsigned LongPointer(unsigned long position_in)
+ bool setUnsignedLong (unsigned long position _in, unsigned long valueUnsigned Long_in)
+ unsigned long sizeOf()
# bool doIncreaseSize()
paceval_cValuesStack
paceval_eCalculationPrecision Types arrayOfVariableValuesHasPrecision
long double * handle _arrayOfVariableValuesAsLong Double
double * handle_arrayOfVariable ValuesAsDouble
float * handle_arrayOfVariable ValuesAsFloat
long double * handle _stackOfValuesAsLongDouble
double * handle_stackOfValues AsDouble
float * handle_stackOfValues AsFloat
bool * handle_stackOfHas TrustedMinMaxValues
long double * handle _stackOfTrustedMinValues
long double * handle _stackOfTrustedMaxValues
+ paceval_cValuesStack (paceval_cCleanupHandler *handle_CleanupHandler_in)
+ void initializeData (unsigned long numberOfValues_in)
+ ~paceval_cValuesStack()
+ long double * getValueFrom ArrayOfVariablesAsLongDouble (unsigned long position_in)
+ double * getValueFromArray OfVariablesAsDouble(unsigned long position_in)
+ float * getValueFromArray OfVariablesAsFloat(unsigned long position_in)
+ void * getArrayOfVariable ValuesPointer(paceval_eCalculation PrecisionTypes useCalculationPrecision_in)
+ void setArrayOfVariableValues AsLongDouble(long double *handle_arrayOfVariableValuesAsLong Double_in)
+ void setArrayOfVariableValues AsDouble(double *handle_arrayOfVariable ValuesAsDouble_in)
+ void setArrayOfVariableValues AsFloat(float *handle_arrayOfVariable ValuesAsFloat_in)
+ long double * getStackOf ValuesFieldPointerAsLongDouble (unsigned long positionField_in)
+ double * getStackOfValues FieldPointerAsDouble(unsigned long positionField_in)
+ float * getStackOfValues FieldPointerAsFloat(unsigned long positionField_in)
+ bool * getStackOfHasTrusted MinMaxValuesPointer()
+ long double * getStackOf TrustedMinValues()
+ long double * getStackOf TrustedMaxValues()
paceval_cAtomicGraphNode AddValue
+ paceval_cAtomicGraphNode AddValue(paceval_cCleanupHandler *handle_CleanupHandler_in)
+ void initializeDataAddVariable (const char *operator_in, long valueNode1_in, long position _in, long resultNode_in)
+ void initializeDataAddValue (const char *operator_in, long resultNode_in, long position_in, const char *valueOperator_in)
paceval_cAtomicGraphNode Operation
+ long lockedInnerCacheFor StackNumber
# bool outerCachedLinkedResult Available
# long outerCachedLinkedResult
# bool * handle_InnerCached ResultAvailable
# void ** handle_InnerCachedData
+ paceval_cAtomicGraphNode Operation(paceval_cCleanupHandler *handle_CleanupHandler_in)
+ void initializeDataOperation (const char *operator_in, long valueNode1_in, long valueNode2_in, long resultNode _in, long position_in)
+ ~paceval_cAtomicGraphNode Operation()
+ void setOuterCachedLinked Result(long outerCachedLinkedResult_in)
+ bool hasOuterCachedResult (long *outerCachedLinkedResult_out)
+ bool updateInnerCachedResult (const unsigned long stackNumber _in, const paceval_eCalculationPrecision Types useCalculationPrecision_in, const void *handle_value1_in, const void *handle _value2_in, const void *handle_result_in, const bool hasTrustedMinMaxValues_in, const long double *trustedResult_in, const long double *trustedMinValue_in, const long double *trustedMaxValue_in)
+ bool hasInnerCachedResult (const unsigned long stackNumber _in, const paceval_eCalculationPrecision Types useCalculationPrecision_in, const void *handle_value1_in, const void *handle _value2_in, long double *resultAsLongDouble _out, double *resultAsDouble_out, float *resultAsFloat _out, bool *hasTrustedMinMaxValues_out, long double *trustedResult_out, long double *trustedMinValue_out, long double *trustedMaxValue_out)
# void initiateData(const char *operator_in, long valueNode1_in, long valueNode2 _in, long resultNode_in, long position_in, const char *valueOperator_in)
paceval_cComputation
+ __int64 thisInt64_HANDLE
# PACEVAL_HANDLE thisPtrComputation _HANDLE
# unsigned long display _lengthfunctionString
# char display_functionString50 Chars
# unsigned long numberOfCached Calculations
# unsigned long numberOfPrefetched Calculations
# unsigned long numberOfInner CachedCalculations
# unsigned long numberOfOuter CachedCalculations
# unsigned long idSingleCalculation
# long singleCalculationPosition
# bool useFunctionStringOptimized
# unsigned long * optimized PositionMapping
# char * functionStringOptimized
# bool thisComputationIsBusy
# paceval_eCalculationPrecision Types eFloatingPointPrecision
# paceval_cGraph * handle _Graph
# paceval_cListOfVariables * handle_listOfVariables
# paceval_cValuesStack ** handle_ValuesStacks
# bool useTrustedMinMaxResult
+ paceval_cComputation (paceval_callbackStatusType *paceval_callbackStatus_in)
+ void initializeData (PACEVAL_HANDLE handle _pacevalComputation_in, unsigned int sizeOfLongDouble _in, const char *functionString _in, unsigned long numberOfVariables _in, const char *variables_in, bool useInterval_in)
+ ~paceval_cComputation()
+ void initializeMathConstants()
+ void initializeFinal (paceval_cGraph *handle _Graph_in, unsigned int sizeOfLongDouble_in, paceval _cListOfVariables *listOfVariables _in, bool useInterval_in)
+ int getVersionString (char *paceval_strVersion_in)
+ paceval_cGraph * getGraph()
+ void setVariablesAsLongDouble ForStack(unsigned long stackNumber _in, long double *values_in)
+ void setVariablesAsDouble ForStack(unsigned long stackNumber_in, double *values_in)
+ void setVariablesAsFloat ForStack(unsigned long stackNumber_in, float *values_in)
+ bool doComputation (bool singleCalculation _in, unsigned long startSpecific AtNode_in, unsigned long endSpecific AtNode_in, paceval_eCalculationPrecisionTypes useCalculationPrecision_in, void *result _out, unsigned long stackNumber, bool *error _out, paceval_sErrorInformation *errorInformation _out, long double *trustedMinResult_out, long double *trustedMaxResult_out)
+ long getNumberOfVariables()
+ long getNumberOfPosition LevelsInGraph()
+ void resetSingleCalculation Position()
+ long getSingleCalculation Position()
+ bool getIsBusy()
+ bool setIsBusy(bool thisComputationIsBusy_in)
+ int getComputationInformation XML(char *paceval_strXML_out)
+ long getPositionForDisplay (long positionFunction_in)
+ paceval_cListOfVariables * getListOfVariables()
+ unsigned long getNumberOf CachedCalculations()
+ unsigned long getNumberOf PrefetchedCalculations()
+ void increaseIdSingleCalculation()
+ unsigned long getIdSingle Calculation()
+ unsigned long getNumberOf SingleCalculationThreads()
+ long lockAndGetToDoLevel MultithreadPosition(unsigned long stackNumber_in, unsigned long idSingleCalculationToDo _in, unsigned long *lastToDoLevelMultithread Position_in, unsigned long *startSpecificAtNode _in, unsigned long *endSpecificAtNode_in)
+ bool unlockToDoLevelMultithread Position(unsigned long stackNumber _in, unsigned long lockedLevelMultithread Position_in, unsigned long idSingleCalculationToDo_in)
# bool createOptimizedFunction String(const char *functionString _in, unsigned long *lengthFunctionString _out, unsigned long *lengthOptimizedFunctionString_out)
# bool identifyOptimizedEnd Position(const char *functionString _in, unsigned long insertStartPosition, unsigned long *insertEndPosition_out)
# void initiateReferencePrecision Cuts(paceval_eCalculationPrecision Types useCalculationPrecision_in)
# paceval_cSyntacticAnalysis * createSyntacticAnalysis (const char *functionString _in, paceval_cListOfVariables *listOfVariables_in)