paceval_cRegisteredObject

unsigned long registerPosition

+ paceval_cRegisteredObject
(paceval_cCleanupHandler
*handle_CleanupHandler_in)
+ ~paceval_cRegisteredObject()
+ void setRegisterPosition
(unsigned long registerPosition_in)
+ unsigned long getRegister
Position()

---

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_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_sErrorInformation

+ paceval_eErrorTypes
error_eErrorType
+ paceval_eOperatorTypes
error_eOperator
+ long error_ePosition

---

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_cGraph

- PACEVAL_HANDLE handle
_pacevalComputation
- long numberOfPositionLevels
- long maxToDoLevelMultithread
Position
- pthread_mutex_t handle
_lockToDoLevelMultithreadMutex
Object

+ 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_cListOfVariables

+ 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_cCleanupHandler

paceval_callbackStatusType
* handle_CallbackStatus
# paceval_eStatusTypes
currentStatus
int percentageDone
unsigned long length
_functionString
bool lastError_isError
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_cSyntacticAnalysis

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)

#handle_CleanupHandler   #handle_Scanner   -listOfLevelMultithreadPositions   -listOfcAtomicGraphNodes   -listOfPointers   #listOfpacevalObjects   #lastErrorInformation   #handle_Graph   #listOfVariables