getrf

IMPORTS

PBblas | PBblas.Types | PBblas.internal | PBblas.internal.Types | std.BLAS |
PBblas.internal.MatDims | std.system.Thorlib |

DESCRIPTIONS

FUNCTION getrf

DATASET(Layout_Cell)	getrf
(DATASET(Layout_Cell) A)	

LU Factorization Splits a matrix into Lower and Upper triangular factors Produces composite LU matrix
for the diagonal blocks. Iterates through the matrix a row of blocks and column of blocks at a time.
Partition A into M block rows and N block columns. The A11 cell is a single block. A12 is a single row of
blocks with N-1 columns. A21 is a single column of blocks with M-1 rows. A22 is a sub-matrix of M-1 x
N-1 blocks. | A11 A12 | | L11 0 | | U11 U12 | | A21 A22 | == | L21 L22 | * | 0 U22 | | L11*U11 L11*U12
| == | L21*U11 L21*U12 + L22*U22 | Based upon PB-BLAS: A set of parallel block basic linear algebra
subprograms by Choi and Dongarra This module supports the "Myriad" style interface, allowing many
independent problems to be worked on at once. The A matrix can contain multiple matrixes to be
factored, indicated by different values for work-item id (wi_id). Note: The returned matrix includes both
the upper and lower factors. This matrix can be used directly by trsm which will only use the part
indicated by trsm's 'triangle' parameter (i.e. upper or lower). To extract the upper or lower triangle
explicitly for other purposes, use the ExtractTri function. When passing the Lower matrix to the triangle
solver (trsm), set the "Diagonal" parameter to "UnitTri". This is necessary because both triangular
matrixes returned from this function are packed into a square matrix with only one diagonal. By
convention, The Lower triangle is assumed to be a Unit Triangle (diagonal all ones), so the diagonal

contained in the returned matrix is for the Upper factor and must be ignored (i.e. assumed to be all ones) when referencing the Lower triangle.

PARAMETER **A** The input matrix in Types.Layout_Cell format

RETURN Resulting factored matrix in Layout_Cell format

SEE Types.Layout_Cell

SEE ExtractTri