digital
Software Product Description

PRODUCT NAME: SSP-11, Version 1.2 **SPD 15.45.6**
PDP-11 Scientific Subroutine Package

DESCRIPTION:

The Scientific Subroutine Package (SSP) is a collection of over 100 mathematical and statistical routines commonly required in scientific programming. The subroutines are written in FORTRAN and contain no I/O statements.

Many of the larger statistical routines are provided as a collection of several smaller routines. This enables easier incorporation in larger programs requiring overlays.

SSP-11 Subroutines

ABSNT	Detection of missing data
ARRAY	Vector storage double dimensioned storage conversion
AUTO	Autocovariances
AVCAL	AND operation
AVDAT	Data storage allocation
BESI	I Bessel function
BESJ	J Bessel function
BESK	K Bessel function
BESY	Y Bessel function
BOUND	Selections of observations within bounds
CADD	Add column of one matrix to column of another matrix
CANOR	Canonical correlation
CCPY	Copy column of matrix into vector
CCUT	Partition column-wise
CEL1	Elliptic integrals of the first kind
CEL2	Elliptic integrals of the second kind
CHISQ	CHI square test for a contingency table
CINT	Interchange two columns
CORRE	Means, standard deviations, and correlations
CROSS	Cross covariances
CS	Fresnel integrals
CSRT	Sort matrix columns
CSUM	Sum the columns of a matrix
CTAB	Tabulate the columns of a matrix
CTIE	Adjoin two matrices column-wise
DCLA	Replace diagonal with scalar
DCPY	Copy diagonal of matrix into vector
DISCR	Discriminant functions
DMATX	Means and dispersion matrix
EIGEN	Eigenvalues and eigenvectors of a real, symmetric matrix
EXPI	Exponential integral
EXSMO	Triple exponential smoothing
FORIF	Fourier analysis of a given function
FORIT	Fourier analysis of a tabulated function
GAMMA	Gamma function
GAUSS	Normal random numbers
GDATA	Data generation
GMADD	Add two general matrices
GMPRD	Product of two general matrices
GMSUB	Subtract two general matrices
GMTRA	Transpose of a general matrix
GTPRD	Transpose product of two general matrices
KRANK	Kendall rank correlation
LEP	Legendre polynomial
LOAD	Factor loading
LOC	Location in compressed-stored matrix
MADD	Add two matrices
MATA	Transpose product of matrix by itself
MCPY	matrix copy
MEANQ	Mean square operation
MFUN	Matrix transformation by function
MOMEN	First four moments
MPRD	Matrix product (row into column)
MSTR	Storage conversion
MSUB	Subtract two matrices
MTRA	Transpose a matrix
MULTR	Multiple regression and correlation
NROOT	Eigenvalues and eigenvectors of a special nonsymmetric matrix

ORDER	Rearrangement of integer correlations
PADD	Add two polynomials
PADDM	Multiply polynomial by constant and add to another polynomial
PCLA	Replace one polynomial by another
PLCD	Complete linear synthetic division
PDER	Derivative of a polynomial
PDIV	Divide one polynomial by another
PILD	Evaluate polynomial and its first derivative
PINT	Integral of a polynomial
PGCD	Greatest common divisor of two polynomials
PMPY	Multiply two polynomials
PNORM	Normalize coefficient vector of polynomial
POLRT	Real and complex roots of a real polynomial
PSUB	Subtract one polynomial from another
PQSD	Quadratic synthetic division of a polynomial
PVAL	Value of a polynomial
PVSUB	Substitute variable polynomial by another polynomial
QATR	Integral of a given function by trapezoidal rule using Romberg's extrapolation method
QSF	Integral of equidistantly tabulated function by Simpson's Rule
QTEST	Cochran Q-test
RADD	Add row of one matrix to row of another matrix
RCPY	Copy row of matrix into vector
RANK	Rank observations
RECP	Reciprocal function for MFUN
RCUT	Partition by row
RKGS	Solution of a system of first order differential equations with given initial values by the Runge-Kutta method
RINT	Interchanges two rows
RK2	Tabulated integral of first order differential equation by Runge-Kutta method
RK1	Integral of first-order differential equation by Runge-Kutta method
RSUM	Sum the rows of a matrix
RTAB	Tabulate the rows of a matrix
RSRT	Sort matrix rows
RTMI	Determine root within a range by Mueller's iteration
RTIE	Adjoin two matrices row-wise
RTWI	Refine estimate of root by Wegstein's iteration
RTNI	Refine estimate of root by Newton's iteration
SCLA	Matrix clear and add scalar
SADD	Add scalar to matrix
SDIV	Matrix divided by a scalar
SCMA	Scalar multiply column and add to another column
SICI	Sine/cosine integral
SIMQ	Solution of simultaneous linear algebraic equations
SMO	Application of filter coefficients (weights)
SMPY	Matrix multiplied by a scalar
SANK	Spearman rank correlation
SRMA	Multiply a row by a scalar and add to another row
SSUB	Subtract scalar from matrix
SUBMX	Build subset matrix
SUBST	Subset selection from observation matrix
TAB1	Tabulation of data (one variable)
TAB2	Tabulation of data (two variables)
TALLY	Totals, means, standard deviations, minimums, and maximums
TPRD	Transpose product
TRACE	Cumulative percentage of eigenvalues
TTSTT	Tests on population means
TWOAV	Friedman 2-way analysis of variance
UTEST	Mann-Whitney U-test
VARMX	Varimax rotation
WTEST	Kendall coefficient of concordance
XCPY	Copy submatrix from given matrix

MINIMUM HARDWARE REQUIRED:

- Any valid RT-11 Operating System configuration supporting FORTRAN IV/RT-11 with at least 32K bytes of memory
- Any valid mapped RSX-11M Operating System configuration supporting either FORTRAN IV/IAS-RSX or FORTRAN IV-PLUS with at least 32K byte user available partition
- Hardware configuration must include a device capable of reading distribution media

OPTIONAL HARDWARE

None

PREREQUISITE SOFTWARE

- RT-11 Operating System, Version 4.0 and FORTRAN IV/RT-11, Version 2.5
- RSX-11M Operating System, Version 3.2 and either FORTRAN IV/IAS-RSX, Version 2.5 or FORTRAN IV-PLUS, Version 3.0

OPTIONAL SOFTWARE:

None

TRAINING CREDITS:

None

SUPPORT CATEGORY:

DIGITAL SUPPORTED

SSP-11 is a DIGITAL Supported Software Product.

SOFTWARE INSTALLATION:

CUSTOMER INSTALLED

SSP-11 is a software product engineered to be installed by the customer and includes other Software Product Support services listed below.

SOFTWARE PRODUCT SUPPORT:

SSP-11 includes standard warranty services as defined in the Software Support Categories Addendum of this SPD.

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E = RK05 Disk Cartridge
H = RL02 Disk Cartridge
M = 9-track 1600 BPI Magtape (PE)
Q = RL01 Disk Cartridge
T = RK06 Disk Cartridge
Y = RX01 Floppy Diskette
Z = No hardware dependency

For RT-11 Systems

QJ960 -A— Single-use license, binaries, documentation, support services (media: E, H, Q, Y)

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Update Options

Users of SSP-11 whose specified Support Category warranty has expired may order the following software update at the then current charge for such update. The update is distributed in binary form on the appropriate medium and includes no installation or support services unless specifically stated.

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ADDITIONAL SERVICES:

Post-warranty Software Product Services for this software product are available with the prerequisite being the purchase of the RT-11 and/or RSX-11M Self-Maintenance Service for Software. Customers should contact their local DIGITAL office for additional information.