

① Calcule $\{A2\} = \text{Arctg}(y)$

Objet XAEXP

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XARCTG: CLR D0
          CMP #4000, (A0)
          BEQ XPOSEDEZ
          BCLR #7, (A0)
          BEQ KL92
          MOVE.L A0, -(SP)
          BSR KL92
          MOVE.L (SP)+, A0
          BSET #7, (A0)
          BSET #7, (A2)
          RTS

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⊗
 } Arctg(0) = 0

replaces KL87

KL92: CLR.L -(SP) i=0

MOVE TPREC1, D3

BSR XINTE <y_0> = 2^alpha A

MOVE.L A2, -(SP)

KL93: MOVE.L (SP), A2

BSR XAORD i

BEQ KL94 -> y_i approx 2^-i

ADDQ #1, 6(SP) i=i+1

MOVE.L A0, A1

BSR XMUL1

MOVE.L (SP), A0 y = 2^(-2alpha * i) [A2]

MOVE (A0), D1

ADD D1, D1 <- ADD D2, D1 2alpha + gamma

MOVE.L A2, A0 (MOVE D1, 4(SP))

BSR XXP2N 2^(2alpha + gamma)

MOVE.L A2, A1

BSR XADD1 1 + y^2 = 2^((2alpha + gamma) * i) [A2]

MOVE.L A2, A0

BSR SQRT1F sqrt(1 + y^2) = 2^((alpha + gamma/2) * i) [A2]

MOVE 4(SP), D1

ASR #1, D1 alpha + gamma/2

MOVE.L A2, A0

BSR XXP2N 2^(alpha + gamma/2)

MOVE.L A2, A1

BSET #7, (A1)

BSR XADDS1 sqrt(1 + y_i^2) - 1 = 2^((alpha + gamma/2) * i) [A2]

MOVE.L A2, A0

MOVE.L (SP), A1

ADDQ #2, A1 y_i = 2^alpha [A1]

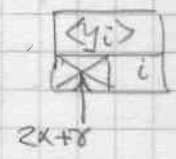
BSR XDIV1 y_{i+1} = (sqrt(1 + y_i^2) - 1) / y_i = 2^(-gamma/2) [A2]

MOVE.L (SP), A0

MOVE.L 4(SP), D1

ASR #1, D1 D1 = gamma/2

SUB (A0), D1



x

MOVE.L A2, A0
BSR XBNB D1=l
MOVE TPREC1, D2
ASL #2, D2
SUB D1, D2
ADDQ #1, D2
BCLR #0, D2 pair
BSR XROT

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MOVE D1, (A0)+
BSR  XLB76
BRA  KL93

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KL94: MOVE.L A0, A1 ← ADDQ #2, A6
BSR  XMUL1

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$$y^2 = 2^{-2\alpha} [A2]$$

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MOVE.L A2, A0
BSR  XBNS

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$$D1 = l$$

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MOVE D1, D2

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SUB D1, D2
MOVE D2, 4(SP) ← 2x-β
MOVE D1, -(A0) ⊗

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NEG D2
MOVE.L (SP), A0B
MOVE (A0), D1
ADD D1, D1
SUB D2, D1

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BSR  XORR ⊗

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$$y^2 = 2^{-(2\alpha-\beta)} [A2]$$

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LEA -2(A2), A0

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$$\langle A0 \rangle = y^2$$

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BSET #7, (A2)

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LEA XSERST, A3

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BSR  XSERIE

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$$A2 = 2^{-(2\alpha-\beta)} (1 - \frac{y^2}{3} + \frac{y^4}{5} - \dots)$$

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MOVE.L A2, A1

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MOVE.L (SP), A0

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ADDQ #2, A0

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BSR  XMUL1

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$$\text{Arctg } y_N = 2^{+\beta-3\alpha} [A2]$$

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MOVE 4(SP), D2 ← 2x-β

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BRA  KL90

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$$\rightarrow \text{Arctg } y_N = 2^{-\alpha} [A2]$$