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TO DIRNSA

INFO AUSLO

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~~SECRET COMINT CHANNELS~~

SM-019-82

FOR

SUBJ: PROJECT LOBSTER

REF: SM-018-82 TO AUSLO

1. WOULD LIKE TO EXPAND ON THE QUESTIONS ON THIS TOPIC RECENTLY  
RAISED WITH YOU BY AUSLO ON OUR BEHALF. WE ARE CURRENTLY TRYING  
TO ASSESS THE EFFORT INVOLVED IN IMPLEMENTING AN IMP COMPILER  
AND ASSOCIATED SOFTWARE UNDER NOS/BE. WE REALISE THAT SUPPLYING  
US WITH REQUESTED SOFTWARE AND DOCUMENTATION, AND ANSWERING  
DETAILED QUESTIONS (SEE PARA 4 BELOW) WILL COST YOU SOME EFFORT,  
AND WE ARE MOST GRATEFUL FOR YOUR EXPRESSED WILLINGNESS TO HELP.

WOULD LIKE TO ASSURE YOU THAT THE ALTERNATIVE OF IMPLEMENTING FOLKLORE ON THE 175 IS NOT BEING DISCARDED LIGHTLY.

Declassified by ASD - 7/02/2022  
Information removed for national security and/or personal sensitivities

2. SOME CONSIDERATIONS ARE:

- A) THE 175 IS USED FOR SOME ESSENTIAL NON-CRYPT PROCESSES FOR WHICH FOLKLORE IS UNSUITABLE. TO ACCOMMODATE THESE, AND TO ALLOW GRADUAL MIGRATION OF CRYPT PROCESSING TO FOLKLORE, WE WOULD NEED TO PROVIDE A SECOND NOS/BE PROCESSOR. (TIME SHARING THE 175 BETWEEN FOKLORE AND NOS/BE IS NOT A PRACTICAL PROPOSITION). THIS COST WOULD BE IN ADDITION TO THE CONSIDERABLE COST OF UPGRADING 175 HARDWARE, INCLUDING 250K ECS INCREMENT.
- B) FUNDING, PURCHASING, INSTALLATION AND SOFTWARE DEVELOPMENT LEAD TIMES ARE CUMULATIVE. BEST GUESS IS THAT IMPLEMENTATION WOULD BE UNLIKELY BEFORE MID 1984, BY WHICH TIME 175 WILL BE 6 1/2 YEARS OLD. THE 175 IS CLEARLY NOWHERE ON THE CDC DEVELOPMENT PATH, SO THAT FOLKKORE/175 WOULD NOT BE READILY TRANSPORTABLE TO ANY NEW MACHINE.
- C) WE BELIEVE THAT AN EFFICIENT IMPLEMENTATION WOULD REQUIRE A HARDWARE MODIFICATION AN EXPENSIVE FIX OF THIS TYPE HAS BEEN SUPPLIED FOR ESM, BUT CDC WILL NOT QUOTE FOR SUCH A MOD TO OUR 175. FROM INFO THEY HAVE SUPPLIED SO FAR WE ASSESS THAT DIRECT ACCESS TO IS NOT A REAL POSSIBILITY.

3. HAVING ASSESSED FOLKLORE/175 AS VERY EXPENSIVE, AND UNLIKELY TO BE SATISFACTORY IN THE LONG TERM, WE ARE LOOKING TO INSTALL FOLKLORE IN 1986 ON A MACHINE MORE COMPATIBLE WITH WHAT THE REST OF THE SIGINT COMMUNITY IS THEN USING. HENCE OUR CURRENT INTEREST IN BUILDING IMP AND FTN2 COMPILERS UNDER NOS/BE, TO ENABLE US TO RUN SOME OLDER, LESS FOLKLORE - DEPENDENT IMP PROGRAMS BETWEEN NOW AND 1986.

4. SOME WORK HAS ALREADY BEEN DONE HERE. WE HAVE OBTAINED AN IMP COMPILER ABSOLUTE WE PROPOSE TO RUN THIS UNDER NOS/BE, TRAPPING AND RE-INTERPRETING BAD INSTRUCTIONS (LCM) AND SYSTEM CALLS. IF WE CAN MAKE THE COMPILER RUN WE CAN USE IT TO COMPILE THE COMPILER SOURCE WHICH WE CAN THEN MODIFY TO PRODUCE

BINARIES FOR NOS/BE.

THIS TASK WOULD BE CONSIDERABLY SIMPLIFIED IF WE HAD ACCESS TO  
VERSION OF THE COMPILER. COULD YOU CONSTRUCT  
AND SUPPLY ONE? EFFICIENCY AND CORE USAGE ARE OF NO CONCERN IN  
OUR INITIAL ABSOLUTE. MAX CORE USAGE OF THE BINARY CAN BE UP TO  
500,000 OCTAL WORDS.

5. WE ALSO NEED ANSWERS TO THE FOLLOWING:

- A. ARE THERE ANY RUN TIME SYSTEM LOADED ROUTINES? IF SO, WHAT ARE THEY AND WHERE ARE THEY.
- B. WHAT ARE ENTRY POINT NODES AND ASSOCIATED ROUTINGS IN THE BINARY,
- C. DOES DMACH BEING SET TO 2 DO ANTHING? COMMENTS SAY COMPILE FOR 6600.
- D. WE NEED MORE DETAILS ON IMPMAC AND ITS CONSTRUCTION.
- E. HOW IS THE IOB AND RA+1 INITIALIZED AND BY WHOM? WHAT ARE THEY INITIALIZED TO?.
- F. WHEN THE COMPILER IS INTIALIZING, WHAT DOES THE 1 SEG-  
MENT AND DO?

6. ALL THIS IN ADDITION TO THE SOURCE CODE AND ASSOCIATED DOCUMENTATION LISTED IN REF A. BELIEVE MAY BE ABLE TO HELP BY ORGANISING TRANSFER ONCE AGAIN, MANY THANKS.

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