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ARPA Order Number D047

Contract Number F19628-95-C-0208
Issued by
ESC/ENC

ARPA Touchstone HPC to Advanced SAR Processing Problems

Program Manager: Ron Majewski

Reporting Period: thru 31 March, 1996
Quarterly Technical and Scientific Report

ERIM Report Number: 279400-2-T

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ERIM-320

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (*Leave Blank*)

2. REPORT DATE
April 1996

3. REPORT TYPE AND DATES COVERED
Quarterly Scientific & Technical Report

4. TITLE AND SUBTITLE
Application of the ARPA Touchstone HPC to Advanced SAR Processing Problems

5. FUNDING NUMBERS

6. AUTHOR(S)
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7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
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8. PERFORMING ORGANIZATION REPORT NUMBER
279400-2-T

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
ARPA/ITO
3700 N. Fairfax Drive
Arlington, VA 22203-1714

10. SPONSORING/MONITORING AGENCY REPORT NUMBER
F19628-95-C-0208
ARPA Order No. D047

11. SUPPLEMENTARY NOTES
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12b. DISTRIBUTION CODE

13. ABSTRACT (*Maximum 200 words*)

The attached report details the objective, methodology, problems, and results for the program "Application of the ARPA Touchstone HPC to Advanced SAR Processing Problems."

14. SUBJECT TERMS
Touchstone, IFSAR, SAR, HPC

15. NUMBER OF PAGES
1

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT
Unclassified

18. SECURITY CLASSIFICATION OF THIS PAGE
Unclassified

19. SECURITY CLASSIFICATION OF ABSTRACT
Unclassified

20. LIMITATION OF ABSTRACT
Unclassified

NSN 7540-01-280-5500

DTIC QUALITY INSPECTED 4

Standard Form 298 (Rev. 2-92)
Prescribed by ANSI Std. 239-18
298-102

Task Objective

The task objective is to develop the description of a rugged Touchstone processor that will process radar data from the ARPA IFSARE (Interferometric SAR for Elevations) system into terrain height images at rates equal to or better than four times the real-time collection rate. The processor system description shall be complete and will describe the IFP software and hardware needed to provide the production rates stated above. The processor configuration produced shall be based on timing runs made with code somewhat optimized for the rugged Touchstone. Although the effort is centered on the IFSARE system, the results are extendable to interferometric SAR systems.

Technical Problems

There were no technical problems to report during the first quarter.

General Methodology

The existing IFSARE SAR image processing and terrain height extraction software will be ported to the Touchstone computing environment. Once ported, the software will be optimized partially to decrease its execution time; a typical IFSARE data set will be used to measure execution time. Once the software is ported, is optimized partially, and has its throughput quantified, it will be possible to estimate accurately the size of the Touchstone system necessary to perform IFSARE processing. The size of the processor implies the number of individual processing nodes and total system memory. The applicability of Touchstone accelerator nodes to the IFSARE processing problem will also be examined.

Technical Results

There were no technical results to report during the first quarter.

Important Findings and Conclusions

Nothing to note during the first quarter.

Significant Hardware Development

None to report for the first quarter.

Special Comments

None.

Implication for Further Research

Nothing identified during the first quarter.