In the Beginning

Jack Dongarra

University of Tennessee

Oak Ridge National Lab
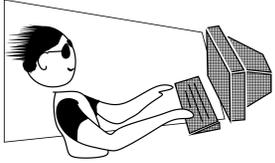
PVM

▶ Al and Vaidy started the project in the summer of 1989 at ORNL.

  ▶ Version 1 was used internally at ORNL and not released.

▶ Liz Jessup came to ORNL as the Householder Fellow, July 1990 – July 1991

  ▶ Bob Manchek

▶ Bob was hired by ICL to work on extending a system called SCHED to distributed memory, was to use PVM as a platform

▶ Needed to rewrite PVM

▶ Version 2 was rewritten and released March 1991.

▶ Version 3 was a redesign and finished in March 1993.

1991 - 1992

- The MPI effort began in the summer of 1991 when a small group of researchers started discussions at a mountain retreat in Austria.
  - IBM Oberlech Conference
  - Tony Hey, Rolf Hempel, Ulrich Trottenberg, JD
- Message passing was in the air
  - Intel NX, Express, Zipcode, PARMACS, IBM EUI/CCL, PVM, P4, Occam, Linda, …
- Many groups pursuing ideas
- Concern there would be European and competing US efforts
- The community felt the need to have a standard message passing interface.
  - We were developing ScaLAPACK and needed a portable way to do MP

- Out of that discussion in Oberlech came the request for a workshop to discuss the issues.
- Ken Kennedy agreed to a CRPC sponsor a workshop.
- Scalable High Performance Computing Conference (SHPCC) '92, Williamsburg, VA, Hilton Conference Center, April 26-29, 1992.
- At this workshop the basic features essential to a standard message-passing interface were discussed, and a working group established to continue

Dear Colleague,

   We would like to invite you to attend a workshop on "Standards for
Message Passing in a Distributed Memory Environment", sponsored by
the Center for Research on Parallel Computation (CRPC). We expect this to be
the first in a series of workshops directed at establishing standards for
message passing systems and protocols in distributed memory environ[...]
To this end, the workshop will bring together leading researchers fr[...]
and government labs, and representatives from the leading vendors of
distributed memory computers and message passing systems.

The workshop will mostly consist of short (15-20 minute) presentatio[...]
followed by plenty of discussion time. A panel session is also plann[...]
If you would like to give a presentation, or have any other suggesti[...]
concerning the format or content of the workshop, please send email [...]
walker@msr.epm.ornl.gov. Attendance will be limited to 50-60 people [...]
if you want to participate in the workshop you must let us know as s[...]
possible.

The workshop will be held at the conference center of the Williamsbu[...]
50 Kingsmill Road, Williamsburg, VA 23185, beginning at 2pm on Wedne[...]
April 29, 1992, and ending at 5pm the next day. Please note that the [...]
immediately follows the 1992 Scalable High Performance Computing Con[...]
which is being held at the same location. A block of rooms has been
reserved at the Hilton at the special rates of $68 for a single room[...]
for a double room (excluding tax). To take advantage of these rates [...]
your reservation before March 30, and identify yourself as a worksho[...]
participant. The telephone number for reservations is (804) 220-2500[...]
1-800-HILTONS.

Please let us know if you will be attending the workshop by notifyin[...]
Walker by email at walker@msr.epm.ornl.gov. David may also be contac[...]
phone at (615) 574-7401, or fax at (615) 574-0680, and is the point [...]
contact for all matters concerned with the organization, content, an[...]
the workshop.

We look forward to your participation in the workshop!

With Best Regards,

Jack J. Dongarra
Geoffrey C. Fox
Ken Kennedy
David W. Walker

From ken@cs.rice.edu Sun Jan 5 17:38:52 1992
Return-Path: <ken@cs.rice.edu>
Received: from cs.rice.edu by CS.UTK.EDU with SMTP (5.61++/2.7s-UTK)
          id AA06448; Sun, 5 Jan 92 17:38:43 -0500
Received: from ariel.cs.rice.edu by cs.rice.edu (AA22907); Sun, 5 Jan [...]
Received: by ariel.cs.rice.edu (AA17529); Sun, 5 Jan 92 16:38:31 CST
From: ken@cs.rice.edu (Ken Kennedy)
Message-Id: <9201052238.AA17529@ariel.cs.rice.edu>
Subject: European Collaboration (fwd)
To: dongarra%dasher@cs.utk.edu (Jack Dongarra)
Date: Sun, 5 Jan 92 16:38:30 CST
Cc: gcf@nova.npac.syr.edu (Geoffrey Fox),
        chk@ariel.cs.rice.edu (Charles Koelbel),
        danny@cs.rice.edu (Danny Powell),
        linda@ariel.cs.rice.edu (Linda Torczon)
X-Mailer: ELM [version 2.3 PL11]
Status: RO

Jack, the following mail is in reference to our planned workshop on a
universal message-passing interface that I believe you were going to
ask David Walker to arrange as a CRPC workshop. What is the status of
this?   I believe we should invite the Europeans if possible.

Workshop on Standards for Message Passing in a Distributed Memory Environment

- Sponsored by the Center for Research on Parallel Computing, held April 29-30, 1992, in Williamsburg, Virginia

- Attended by a total of 68 invited participants from universities, government laboratories, and hardware and software vendors.

- This workshop showed that broad-based support exists within the high performance computing community for a message passing standard for distributed memory computing systems.

- The workshop discussed the important components that should be included in such a standard, and stressed the necessity of defining a global standard, rather than just a U.S. standard.

- Following the workshop, a preliminary draft proposal, known as MPI, was put forward by Dongarra, Hempel, Hey, and Walker in October 1992.
  - Borrowing heavily from Marc Snir's work at IBM

- A meeting of the MPI working group was held at SC'92 in Minn.
  - Decided to place the standardization process on a more formal footing, and generally to follow the format and organization of the High Performance Fortran Forum.

ORNL/TM-12231

Engineering Physics and Mathematics Division

Mathematical Sciences Section

A PROPOSAL FOR A USER-LEVEL, MESSAGE-PASSING INTERFACE IN A DISTRIBUTED MEMORY ENVIRONMENT

Jack J. Dongarra [‡§]
Rolf Hempel [¶]
Anthony J. G. Hey [†]
David W. Walker [§]

[‡] Department of Computer Science
107 Ayres Hall
Knoxville, TN 37996-1301

[†] Department of Electronics and Computer Sciences
University of Southampton
Southampton, SO9 5NH
United Kingdom

[¶] Gesellschaft für Mathematik und Datenverarbeitung mbH
P. O. Box 1316
D-5205 Sankt Augustin 1
Germany

[§] Mathematical Sciences Section
Oak Ridge National Laboratory
P.O. Box 2008, Bldg. 6012
Oak Ridge, TN 37831-6367

Draft report in November 1992
Final report February 1993

http://bit.ly/mpi-1

The First CRPC Workshop on "Standards for Message Passing in a Distributed Memory Environment"

April 29-30, 1992

Hilton Conference Center
Williamsburg, Virginia, USA

Wednesday, April 29

First Session, 2:00pm to 3:15pm

- *"Message Passing Systems: Portability, Capability, Performance, Standards,"* Anthony Skjellum, Lawrence Livermore National Laboratory (30 min)

- *"European Initiatives Towards a Message Passing Standard,"* Rolf Hempel, GMD (30 min)

- Open Discussion (15 min)

Break, 3:15pm to 3:30pm

Second Session, 3:30pm to 5:30pm

- *"PICL: Description, Experiences, and Implications for Message-Passing Interface Standards,"* Patrick Worley, Oak Ridge National Laboratory (25 min)

- *"The Express Parallel Programming Environment,"* Jon Flower, Parasoft Corporation (25 min)

- *" Standards for Building Message Passing Systems Capable of Supporting Higher-Level Parallel Languages,"* Robert Bjornson, Scientific Computing Associates (25 min)

- *"Heterogeneous Distributed Computing with PVM,"* Adam Beguelin, University of Tennessee and Oak Ridge National Laboratory (25 min)

- Open Discussion (20 min)

Reception, 5:30pm to 7:30pm

Banquet, 7:30pm to 9:30pm

Fifth Session, 2:00pm to 3:50pm

- *"PARMACS: the ANL/GMD Portability Macros for Message Passing,"* R... GMD (25min)

- *"MetaMP: A Higher Level Abstraction for Message Passing,"* Steve Otto, Or... uate Institute (25 min)

- *"A Set of High Level Collective Communication Routines for Multicompute...* van de Geijn, University of Texas at Austin (25 min)

- *"PVM++: An Object-Oriented Interface for Heterogeneous Computing,"* R... University of Tennessee (25 min)

- Open Discussion (10 min)

Break, 3:50pm to 4:00pm

Sixth Session, 4:00pm to 5:00pm

- Panel Discussion (55 min)

    -- Ken Kennedy, Rice University, moderator

    -- Al Geist, Oak Ridge National Laboratory

    -- Michael Heath, University of Illinois

    -- Rolf Hempel, GMD

    -- Anthony Skjellum, Lawrence Livermore National Laboratory

- Wrap-Up, David Walker and Jack Dongarra (5 min)

Workshop Ends, 5:00pm

MPI Forum

▶ Created using the HPF model (Bristol Suites)

▶ A group of 30-40 "experts" in message-passing

  Including MPP vendors,

  CS researchers,

  Application developers.

▶ Met 3 days every 6 weeks for 1.5 years

  and created the MPI-1 specification draft.

Goal: To come out within a few years with a "standard" for message passing building on lessons learned from existing interfaces/languages.
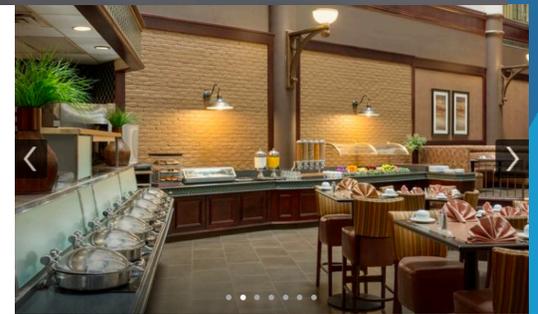
MPI Meetings

▶ Workshop April 29-30, 1992, in Williamsburg, Virginia

▶ SC92, Minneapolis

▶ January 6-8, 1993

▶ February 17-19, 1993

▶ March 31-April 2, 1993

▶ May 12-14, 1993

▶ June 23-25, 1993

▶ August 11-13, 1993

▶ September 22-24, 1993

▶ October 27-29, 1993 meeting in Europe

▶ SC93 Draft presented, public comments

▶ February 23-25, 1994, Knoxville

▶ Version 1.0 of MPI was released in June 1994

▶ Draft MPI standard was presented at the Supercomputing '93 conference in November 1993.

▶ Public comment

▶ Version 1.0 of MPI was released in June 1994.

History of EuroMPI

- 1993 PVM Users' Group, Knoxville, TN PVMUG
- 1994 PVM Users' Group, Oak Ridge TN PVMUG
- 1994 Rome, Italy EuroPVM
- 1995 Lyon, France EuroPVM
- 1996 Munich, Germany EuroPVM
- 1997 Cracow, Poland EuroPVM/MPI
- 1998 Liverpool, UK EuroPVM/MPI
- 1999 Barcelona, Spain EuroPVM/MPI
- 2000 Balatonfured, Hungary EuroPVM/MPI
- 2001 Santorini/Thera, Greece EuroPVM/MPI
- 2002 Linz, Austria EuroPVM/MPI
- 2003 Venice, Italy EuroPVM/MPI
- 2004 Budapest, Hungary EuroPVM/MPI

- 2005 Sorrento, Italy EuroPVM/MPI
- 2006 Bonn / Germany EuroPVM/MPI
- 2007 Paris / France EuroPVM/MPI
- 2008 Dublin / Irland EuroPVM/MPI
- 2009 Helsinki / Finland EuroPVM/MPI
- 2010 Stuttgart / Germany EuroMPI
- 2011 Santorini / Greece EuroMPI
- 2012 Vienna / Austria EuroMPI
- 2013 Madrid / Spain EuroMPI
- 2014 Kyoto, Japan, 2014 Euro/Asia MPI
- 2015 Bordeaux, France, 2015 EuroMPI
- 2016 Edinburgh, Scotland, 2016 EuroMPI
- 2017 Chicago, 2017 Euro/USA MPI

```
                              First
              European PVM Users' Group Meeting
                          Rome, Italy
           October 9-11 1994, Universita' di Roma, Rome


 - CALL FOR PAPERS - CALL FOR PAPERS - CALL FOR PAPERS - CALL FOR PAPERS -


                          Sponsored by

       IBM European Center for Scientific and Engineering Computing

       Ecole Normale Superieure de Lyon     CASPUR c/o Universita' di Roma



The first European PVM Users Group Meeting will be held October 9 to
11, 1994, at the Conference Center of the University of Rome, Via Salaria
113, Rome, Italy.
The meeting will provide an opportunity for European users of PVM to
meet each other, share ideas and experiences, and meet some of the
members of the PVM Team.

The conference will include:

    * Invited talks by:
            Wolfgang Gentzsch (Genias, Germany),
            Vaidy Sunderam (Emory University),
            Bernard Tourancheau (LIP, France),
```

EDGEMOOR BAPTIST CHURCH
TOO HOT TO KEEP
CHANGING THE SIGN
PVM BAD MPI GOOD
HEAR MORE SUNDAY AT 10 AM

EDGEMOOR BAPTIST CHURCH
TOO HOT TO KEEP
CHANGING THE SIGN
MPI BAD PVM GOOD
HEAR MORE SUNDAY AT 10 AM