

Speedup20250917 - Microsoft Visual Studio

File Edit View Project Build Debug Team Test Analyze Window Help

Speedup20250917 (Global Scope) main(int argc, char * argv[])

```
double TinhS(double P)
{
    double S = 1.0 - P;
    return S;
}
double TinhP(double S)
{
    double P = 1.0 - S;
    return P;
}
double TinhSpeedupSN(double S, int N)
{
    double Speedup = 0.0;
    if ((S >= 0.0) && (S <= 1.0) && (N > 0))
    {
        Speedup = 1.0 / (S + (1.0 - S) / N); // Cong thuc Amdahl
    }
    return Speedup;
```

Ready Ln 40 Col 2 Ch 2 INS

Speedup20250917 - Microsoft Visual Studio

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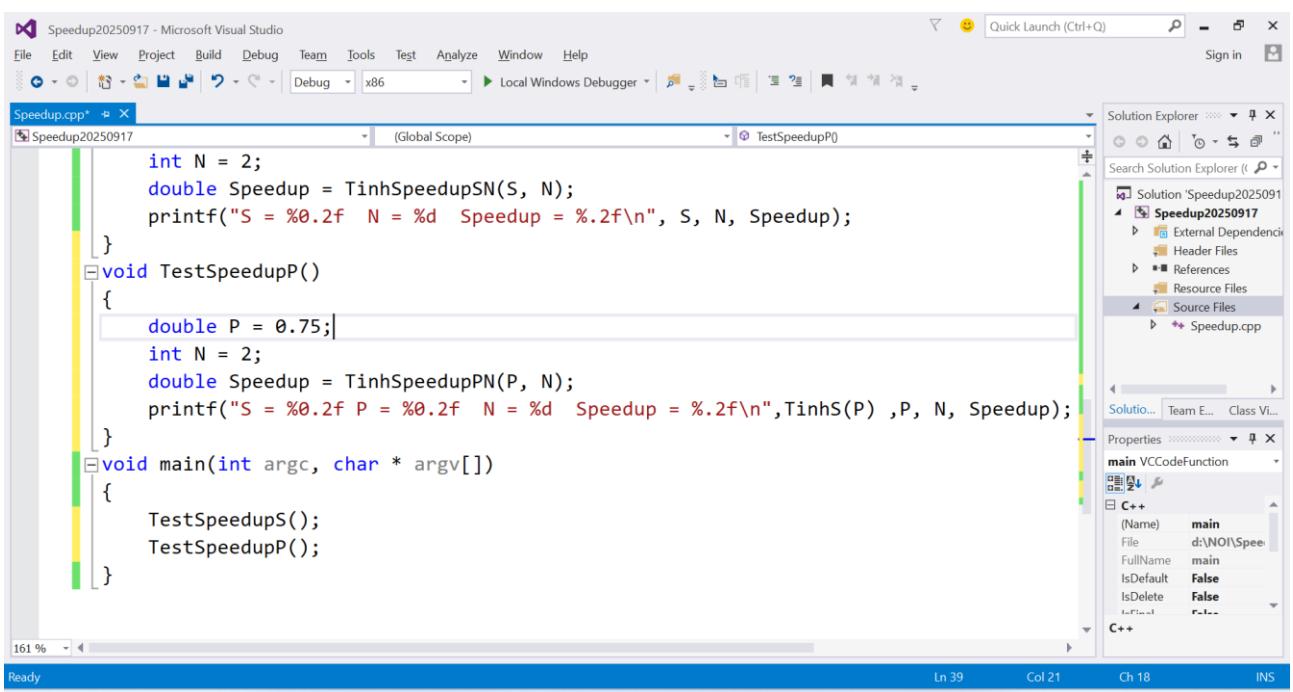
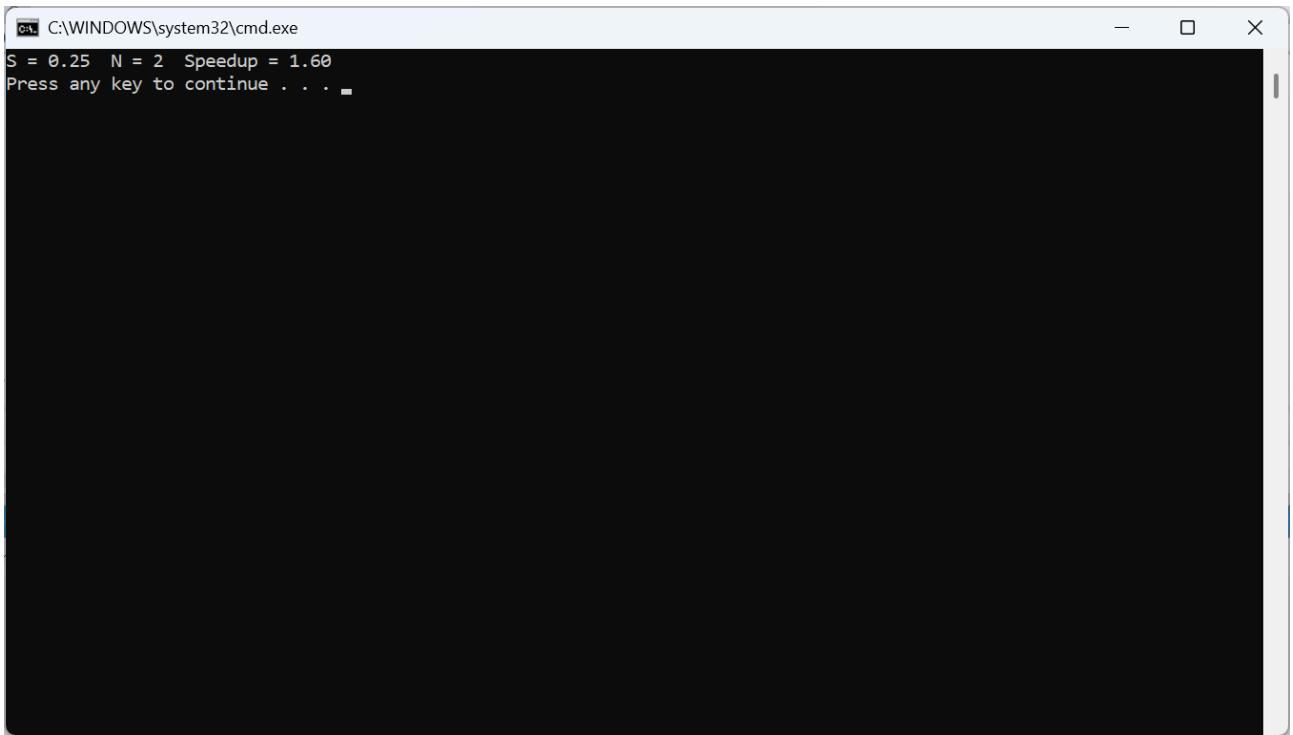
Speedup20250917 (Global Scope) main(int argc, char * argv[])

```
double TinhSpeedupPN(double P, int N)
{
    double Speedup = 0.0;
    double S = TinhS(P);
    Speedup = TinhSpeedupSN(S, N);
    return Speedup;
}

void TestSpeedup()
{
    double S = 0.25;
    int N = 2;
    double Speedup = TinhSpeedupSN(S, N);
    printf("S = %.2f  N = %d  Speedup = %.2f\n", S, N, Speedup);
}

void main(int argc, char * argv[])
{
    TestSpeedup();
```

Ready Ln 40 Col 2 Ch 2 INS



```
C:\WINDOWS\system32\cmd.exe
S = 0.25 N = 2 Speedup = 1.60
S = 0.25 P = 0.75 N = 2 Speedup = 1.60
Press any key to continue . . .
```

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Speedup20250917 Solution Explorer Properties TangSoCore VCCodeFunction

Speedup.cpp

```
#include <iostream>
#include <math.h>

double TinhSFromSpeedUp(double Speedup, int NumCore)
{
    double S = 0.0;
    int N = NumCore;
    S = (N - Speedup) / (Speedup*(N - 1.0)); // Cong thuc amdahl
    return S;
}

int TangSoCore(double CurrentSpeedup, int NumCore, int ntime) { ... }

void TestSpeedupS() { ... }
void TestSpeedupP() { ... }

void TestTinhSFromSpeedUp()
{
    double Speedup = 1.6;
    int N = 2;
    double S = TinhSFromSpeedUp(Speedup, N);
    printf("S = %0.2f \n", S);
}

void main(int argc, char * argv[])
{
}
```

Ready

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Speedup.cpp (Global Scope) TestTinhSFromSpeedUp()

```
int TangSoCore(double CurrentSpeedup, int NumCore, int ntime)
{
    if (ntime <= 0)
        return 0;
    double S = TinhSFromSpeedUp(CurrentSpeedup, NumCore);
    double LimitSpeedup = CurrentSpeedup * ntime;
    int i = NumCore;
    double Speedup = CurrentSpeedup;
    while (Speedup < LimitSpeedup)
    {
        i++;
        Speedup = TinhSpeedupSN(S, i);
    }
    return i - NumCore;
}
void TestSpeedupS() { ... }
void TestSpeedupP() { ... }
void TestTinhSFromSpeedUp()
```

Solution Explorer
Solution 'Speedup20250917'
Speedup20250917
External Dependencies
Header Files
References
Resource Files
Source Files
Speedup.cpp

Properties
Team E... Class Vi...
TestTinhSFromSpeedUp VCC
C++ (Name) TestTinhSFromSpeedUp File d:\NOI\Spec... FullName TestTinhSFromSpeedUp IsDefault False IsDelete False

Ready Ln 77 Col 2 Ch 2 INS

Microsoft Visual Studio - Speedup20250917

File Edit View Project Build Debug Team Tools Test Analyze Window Help

Speedup.cpp (Global Scope) TestTinhSFromSpeedUp()

```
void TestSpeedupP() { ... }
void TestTinhSFromSpeedUp()
{
    double Speedup = 1.6;
    int N = 2;
    double S = TinhSFromSpeedUp(Speedup, N);
    printf("S = %0.2f \n", S);
    int ntime = 2;
    int SoCoreTang = TangSoCore(Speedup, N, ntime);
    printf("So core tang them = %d\n", SoCoreTang);
    double NewSpeedup = TinhSpeedupSN(S, N + SoCoreTang);
    printf("OldSpeedup = %0.2f NewSpeedup = %0.2f\n", Speedup, NewSpeedup);
}

void main(int argc, char * argv[])
{
    TestTinhSFromSpeedUp();
}
```

Solution Explorer
Solution 'Speedup20250917'
Speedup20250917
External Dependencies
Header Files
References
Resource Files
Source Files
Speedup.cpp

Properties
Team E... Class Vi...
TestTinhSFromSpeedUp VCC
C++ (Name) TestTinhSFromSpeedUp File d:\NOI\Spec... FullName TestTinhSFromSpeedUp IsDefault False IsDelete False

Ready Ln 77 Col 2 Ch 2 INS

```
C:\WINDOWS\system32\cmd.exe
S = 0.25
So core tang them = 10
OldSpeedup = 1.60 NewSpeedup = 3.20
Press any key to continue . . .
```

Speedup20250917 - Microsoft Visual Studio

File Edit View Project Build Debug Team Test Analyze Window Help

Speedup.cpp

```
void TestSpeedupS() { ... }
void TestSpeedupP() { ... }
void TestTinhSFromSpeedUp() { ... }
// SP GiaTri SoCoreN Solantang
typedef struct _data_t
{
    char SP;
    double giatri;
    int SoCoreN;
    int Solantang;
    double S;
    double P;
    double Speedup;
    int SoCoreTang;
    double NewSpeedup;
} data_t, * pdata_t;
bool DocTapTin(char * filename, data_t p[], int n)
```

Solution Explorer

Search Solution Explorer (F1)

Solution 'Speedup20250917'

- Speedup20250917
 - External Dependencies
 - Header Files
 - References
 - Resource Files
 - Source Files
 - Speedup.cpp

Properties

DocTapTin VCCodeFunction

C++	(Name) DocTapTin
File	d:\NOI\Speedup20250917\Speedup.cpp
FullName	DocTapTin
IsDefault	False
IsDelete	False
IsUnicode	False

Ready

Ln 99 Col 15 Ch 12 INS

Speedup20250917 - Microsoft Visual Studio

File Edit View Project Build Debug Team Tools Test Analyze Window Help

Speedup20250917

Speedup.cpp (Global Scope)

```
void main(int argc, char * argv[])
{
    //tham so : ten tap tin, so phan tu tap tin
    //Speedup20250917.exe d:\Speedup.txt 200
    if (argc < 3)
        printf("%s filename sphantu\n", argv[0]), exit(0);
    int SoPhanTuMang = atoi(argv[2]);
    if (SoPhanTuMang<=0)
        printf("So phan tu la so am\n"), exit(0);
    pdata_t pdata = (pdata_t)malloc(SoPhanTuMang * sizeof(data_t));
    if (!pdata)
        printf("Khong cap phat duoc bo nho\n"), exit(0);

    DocTapTin(argv[1],pdata, SoPhanTuMang);

}
```

146 %

Ready Ln 99 Col 15 Ch 12 INS

Solution Explorer

Search Solution Explorer (F1)

Solution 'Speedup20250917'

Speedup20250917

- External Dependencies
- Header Files
- References
- Resource Files
- Source Files
- Speedup.cpp

Properties

DocTapTin VCCodeFunction

C++

(Name)	DocTapTin
File	d:\NOI\Speedup20250917\Speedup.cpp
FullName	DocTapTin
IsDefault	False
IsDelete	False
LastSaved	-----

Speedup20250917 - Microsoft Visual Studio

File Edit View Project Build Debug Team Tools Test Analyze Window Help

Speedup20250917

Speedup.cpp (Global Scope)

```
bool DocTapTin(char * filename, data_t p[], int n)
{
    FILE * f = fopen(filename, "rt");
    if (!f)
        printf("Khong the mo tap tin %s\n", filename), exit(0);
    char header[_MAX_PATH];
    fgets(header, _MAX_PATH, f);
    int i = 0;
    printf(header);
    while ((!feof(f)) && (i < n))
    {
        fscanf(f, "%c%lf%d",
               &(p[i].SP), &(p[i].giatri), &(p[i].SoCoreN), &(p[i].SoCoreTang));
        fgets(header, _MAX_PATH, f);
        printf("%2d %c %0.2lf %3d %3d\n", i,
               p[i].SP, p[i].giatri, p[i].SoCoreN, p[i].SoCoreTang);
        i++;
    }
    fclose(f);
    return true;
}
```

146 %

Ready Ln 99 Col 15 Ch 12 INS

Solution Explorer

Search Solution Explorer (F1)

Solution 'Speedup20250917'

Speedup20250917

- External Dependencies
- Header Files
- References
- Resource Files
- Source Files
- Speedup.cpp

Properties

DocTapTin VCCodeFunction

C++

(Name)	DocTapTin
File	d:\NOI\Speedup20250917\Speedup.cpp
FullName	DocTapTin
IsDefault	False
IsDelete	False
LastSaved	-----

```
Speedup20250917 - Microsoft Visual Studio
File Edit View Project Build Debug Team Tools Test Analyze Window Help
Quick Launch (Ctrl+Q)
Sign in
Solution Explorer
Search Solution Explorer (C) ...
Solution Speedup20250917
Speedup20250917.csproj
External Dependencies
Header Files
References
Resource Files
Source Files
Speedup.cpp
Properties
Team E... Class Vi...
Solution... Properties
TinhSpeedupData VCCodeFv
C++
Name: TinhSpeedupData
File: d:\NOI\Spee...
FullName: TinhSpeedup...
IsDefault: False
IsDelete: False
IsFinal: False
C++
146 %
Speedup.cpp* x
Speedup20250917 (Global Scope) TinhSpeedupData(pdata_t p)
void TinhSpeedupData(pdata_t p)
{
    if (p->SP == 'S')
    {
        p->S = p->giatri;
        p->P = TinhP(p->S);
    }
    else
    {
        p->P = p->giatri;
        p->S = TinhS(p->P);
    }
    p->Speedup = TinhSpeedupSN(p->S, p->SoCoreN);
    p->SoCoreTang = TangSoCore(p->Speedup, p->SoCoreN, p->Solantang);
    p->NewSpeedup = TinhSpeedupSN(p->S, p->SoCoreN + p->SoCoreTang);
}
void TinhSpeedupMangData(pdata_t p, int n)
{
    for (int i = 0; i < n; i++)
}
Ln 117 Col 26 Ch 20 INS
Ready
```

```
Administrator: Select C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.26100.3194]
(c) Microsoft Corporation. All rights reserved.

D:\NOI\Speedup20250917\Debug\Speedup20250917.exe d:\Speedup.txt 20
SP      GiaTri  SoCoreN Solantang
0 S 0.25   2   2
1 P 0.75   2   2
2 P 0.40   8   2
3 P 0.40   16  2
4 P 0.67   2   2
5 P 0.67   4   2
6 P 0.90   2   2
7 P 0.90   4   2
8 P 0.36   1   2
9 P 0.82   12  2
10 S 0.33  3   2
11 S 0.73  5   2
12 P 0.58  14  2
13 P 0.21  4   2
14 S 0.49  11  2
15 P 0.43  2   2
16 P 0.75  5   2
17 S 0.55  2   2
18 P 0.19  3   2
19 P 0.64  10  2

D:\NOI\Speedup20250917\Debug>
```

Speedup20250917 - Microsoft Visual Studio

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Speedup20250917 (Global Scope) TinhSpeedupData(pdata_t p)

```
void TinhSpeedupData(pdata_t p)
{
    if (p->SP == 'S')
    {
        p->S = p->giatri;
        p->P = TinhP(p->S);
    }
    else
    {
        p->P = p->giatri;
        p->S = TinhS(p->P);
    }
    p->Speedup = TinhSpeedupSN(p->S, p->SoCoreN);
    p->SoCoreTang = TangSoCore(p->Speedup, p->SoCoreN, p->Solantang);
    p->NewSpeedup = TinhSpeedupSN(p->S, p->SoCoreN + p->SoCoreTang);
}
void TinhSpeedupMangData(pdata_t p, int n)
{
    for (int i = 0; i < n; i++)
        TinhSpeedupData(p + i);
}
```

Ready Ln 117 Col 26 Ch 20 INS

Speedup20250917 - Microsoft Visual Studio

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Speedup20250917 (Global Scope) TinhSpeedupData(pdata_t p)

```
p->NewSpeedup = TinhSpeedupSN(p->S, p->SoCoreN + p->SoCoreTang);
}
void TinhSpeedupMangData(pdata_t p, int n)
{
    for (int i = 0; i < n; i++)
        TinhSpeedupData(p + i);
}
void XuatData(pdata_t p, int n)
{
    printf("TT,SP,giatri,SoCoreN,Solantang,S, P, Speedup, SoCoreTang, NewSpeedup\n");
    for (int i = 0; i < n; i++)
    {
        printf("%3d, %c , %0.2lf , %3d, %3d ,", i,
               p[i].SP, p[i].giatri, p[i].SoCoreN, p[i].Solantang);

        printf("%0.2lf, %0.2lf, %4.2lf, %3d, %4.2lf \n",
               p[i].S, p[i].P, p[i].Speedup, p[i].SoCoreTang, p[i].NewSpeedup);
    }
}
```

Ready Ln 117 Col 26 Ch 20 INS

```

Speedup20250917 - Microsoft Visual Studio
File Edit View Project Build Debug Team Tools Test Analyze Window Help
Speedup20250917 (Global Scope) TinhSpeedupData(pdata_t p)
}
void main(int argc, char * argv[])
{
    //tham so : ten tap tin, so phan tu tap tin
    //Speedup20250917.exe d:\Speedup.txt 200
    if (argc < 3)
        printf("%s filename sophantu\n", argv[0]), exit(0);
    int SoPhanTuMang = atoi(argv[2]);
    if (SoPhanTuMang<=0)
        printf("So phan tu la so am\n"), exit(0);
    pdata_t pdata = (pdata_t)malloc(SoPhanTuMang * sizeof(data_t));
    if (!pdata)
        printf("Khong cap phat duoc bo nho\n"), exit(0);

    DocTapTin(argv[1],pdata, SoPhanTuMang);
    TinhSpeedupMangData(pdata, SoPhanTuMang);
    XuatData(pdata, SoPhanTuMang);
}

```

```

C:\Windows\System32\cmd.exe
13 P 0.21 4 2
14 S 0.49 11 2
15 P 0.43 2 2
16 P 0.75 5 2
17 S 0.55 2 2
18 P 0.19 3 2
19 P 0.64 10 2
TT,SP,giatri,SoCoreN,Solantang,S, P, Speedup, SoCoreTang, NewSpeedup
 0, S , 0.25 , 2 , 2 ,0.25, 0.75, 1.60, 10, 3.20
 1, P , 0.75 , 2 , 2 ,0.25, 0.75, 1.60, 10, 3.20
 2, P , 0.40 , 8 , 2 ,0.60, 0.40, 1.54, 93, 1.66
 3, P , 0.40 , 16 , 2 ,0.60, 0.40, 1.60, 85, 1.66
 4, P , 0.67 , 2 , 2 ,0.33, 0.67, 1.50, 99, 2.97
 5, P , 0.67 , 4 , 2 ,0.33, 0.67, 2.01, 97, 2.97
 6, P , 0.90 , 2 , 2 ,0.10, 0.90, 1.82, 4, 4.00
 7, P , 0.90 , 4 , 2 ,0.10, 0.90, 3.08, 11, 6.25
 8, P , 0.36 , 1 , 2 ,0.64, 0.36, 1.00, 100, 1.55
 9, P , 0.82 , 12 , 2 ,0.18, 0.82, 4.03, 89, 5.32
10, S , 0.33 , 3 , 2 ,0.33, 0.67, 1.81, 98, 2.97
11, S , 0.73 , 5 , 2 ,0.73, 0.27, 1.28, 96, 1.36
12, P , 0.58 , 14 , 2 ,0.42, 0.58, 2.17, 87, 2.35
13, P , 0.21 , 4 , 2 ,0.79, 0.21, 1.19, 97, 1.26
14, S , 0.49 , 11 , 2 ,0.49, 0.51, 1.86, 90, 2.02
15, P , 0.43 , 2 , 2 ,0.57, 0.43, 1.27, 99, 1.74
16, P , 0.75 , 5 , 2 ,0.25, 0.75, 2.50, 96, 3.88
17, S 0.55 , 2 , 2 ,0.55, 0.45, 1.29, 99, 1.80
18, P , 0.19 , 3 , 2 ,0.81, 0.19, 1.15, 98, 1.23
19, P , 0.64 , 10 , 2 ,0.36, 0.64, 2.36, 91, 2.73
d:\NOI\Speedup20250917\Debug>

```

Speedup20250917 - Microsoft Visual Studio

File Edit View Project Build Debug Team Tools Test Analyze Window Help

Speedup20250917 (Global Scope) main(int argc, char * argv[])

```
void XuatDataTapTin(char * filename, pdata_t p, int n)
{
    FILE * f = fopen(filename, "wt");
    if (!f)
        printf("Khong the tao file %s\n", filename), exit(0);

    fprintf(f, "TT,SP,giatri,SoCoreN,Solantang,S, P, Speedup, SoCoreTang, NewSpeedup\n");
    for (int i = 0; i < n; i++)
    {
        fprintf(f, "%3d, %c , %0.2lf , %3d , %3d ,", i,
                p[i].SP, p[i].giatri, p[i].SoCoreN, p[i].Solantang);

        fprintf(f, "%0.2lf, %0.2lf, %4.2lf, %3d, %4.2lf \n",
                p[i].S, p[i].P, p[i].Speedup, p[i].SoCoreTang, p[i].NewSpeedup);
    }
}

void main(int argc, char * argv[])
{
}
```

Ready Ln 180 Col 5 Ch 5 INS

Speedup20250917 - Microsoft Visual Studio

File Edit View Project Build Debug Team Tools Test Analyze Window Help

Speedup20250917 (Global Scope) main(int argc, char * argv[])

```
void main(int argc, char * argv[])
{
    //tham so : ten tap tin, so phan tu tap tin
    //Speedup20250917.exe d:\Speedup.txt 200 filenameout.csv
    if (argc < 4)
        printf("%s filename sophantu\n", argv[0]), exit(0);
    int SoPhanTuMang = atoi(argv[2]);
    if (SoPhanTuMang<0)
        printf("So phan tu la so am\n"), exit(0);
    pdata_t pdata = (pdata_t)malloc(SoPhanTuMang *sizeof(data_t));
    if (!pdata)
        printf("Khong cap phat duoc bo nho\n"), exit(0);

    DocTapTin(argv[1],pdata, SoPhanTuMang);
    TinhSpeedupMangData(pdata, SoPhanTuMang);
    XuatData(pdata, SoPhanTuMang);
    XuatDataTapTin(argv[3], pdata, SoPhanTuMang);
}
```

Ready Ln 180 Col 5 Ch 5 INS

```
C:\Windows\System32\cmd.exe
19, P , 0.64 , 10 , 2 ,0.36, 0.64, 2.36, 91, 2.73
d:\NOI\Speedup20250917\Debug>Speedup20250917.exe d:\Speedup.txt 20 d:\Speedup.txt.csv
```

New Volume (D:)			
		Search New Volume (D:)	
		Details	
Name	Date modified	Type	Size
SHAREB514	5/19/2025 11:10 AM	File folder	
JPG File			
CA_2.jpg	8/10/2025 8:24 AM	JPG File	187 KB
Microsoft Excel 97-2003 Worksheet			
1003K01KTC01PTTNPM.xls	6/12/2025 10:23 AM	Microsoft Excel 97...	58 KB
1002K01KTC01PTTNPM.xls	6/12/2025 9:44 AM	Microsoft Excel 97...	57 KB
Microsoft Excel Comma Separated Values File			
Speedup.txt.csv	9/17/2025 10:39 AM	Microsoft Excel Co...	2 KB
Microsoft Word Document			
Huong dan SD PM.docx	11/13/2020 2:54 PM	Microsoft Word D...	305 KB
Text Document			
Speedup.txt	9/17/2025 7:40 AM	Text Document	3 KB
Windows Batch File			
XOA.DBAT	11/10/2024 7:27 AM	Windows Batch File	1 KB
WinRAR archive			
NEW_10.08.2025.rar	8/10/2025 12:03 PM	WinRAR archive	2,715 KB
Tracking.rar	6/11/2025 3:31 PM	WinRAR archive	15,267 KB
PM_B514_TCN_LTDD.rar	6/10/2025 11:31 AM	WinRAR archive	166,063 KB

TT	SP	giatri	SoCoreN	Solantang	S	P	Speedup	SoCoreTang	NewSpeedup
2	0 S	0.25	2	2	0.25	0.75	1.6	10	3.2
3	1 P	0.75	2	2	0.25	0.75	1.6	10	3.2
4	2 P	0.4	8	2	0.6	0.4	1.54	93	1.66
5	3 P	0.4	16	2	0.6	0.4	1.6	85	1.66
6	4 P	0.67	2	2	0.33	0.67	1.5	99	2.97
7	5 P	0.67	4	2	0.33	0.67	2.01	97	2.97
8	6 P	0.9	2	2	0.1	0.9	1.82	4	4
9	7 P	0.9	4	2	0.1	0.9	3.08	11	6.25
10	8 P	0.36	1	2	0.64	0.36	1	100	1.55
11	9 P	0.82	12	2	0.18	0.82	4.03	89	5.32
12	10 S	0.33	3	2	0.33	0.67	1.81	98	2.97
13	11 S	0.73	5	2	0.73	0.27	1.28	96	1.36
14	12 P	0.58	14	2	0.42	0.58	2.17	87	2.35
15	13 P	0.21	4	2	0.79	0.21	1.19	97	1.26
16	14 S	0.49	11	2	0.49	0.51	1.86	90	2.02
17	15 P	0.43	2	2	0.57	0.43	1.27	99	1.74
18	16 P	0.75	5	2	0.25	0.75	2.5	96	3.88
19	17 S	0.55	2	2	0.55	0.45	1.29	99	1.8
20	18 P	0.19	3	2	0.81	0.19	1.15	98	1.23

CreateProcess để chạy Excel mở tập tin:\

```

bool OpenExcel(char * filename)
{
    STARTUPINFO si;
    PROCESS_INFORMATION pi;
    ZeroMemory(&si, sizeof(si));
    si.cb = sizeof(si);
    ZeroMemory(&pi, sizeof(pi));
    char cmdline[_MAX_PATH] = "C:\\Program Files\\Microsoft Office\\root\\Office16\\EXCEL.EXE ";
    strcat(cmdline, filename);
    if (!CreateProcess(NULL, // No module name (use command line)
                      cmdline, // Command line
                      NULL, // Process handle not inheritable
                      NULL, // Thread handle not inheritable
                      FALSE, // Set handle inheritance to FALSE
                      0, // No creation flags
                      NULL, // Use parent's environment block
                      NULL, // Use parent's starting directory
                      &si, // Pointer to STARTUPINFO structure
                      &pi) // Pointer to PROCESS_INFORMATION structure
    )
    {
        printf("CreateProcess failed (%d).\n", GetLastError());
        return false;
    }
    CloseHandle(pi.hProcess);
    CloseHandle(pi.hThread);
    return true;
}

```

```

Speedup20250917 - Microsoft Visual Studio
File Edit View Project Build Debug Team Tools Test Analyze Window Help
Speedup20250917 - x86 Local Windows Debugger
Speedup.cpp  (Global Scope) main(int argc, char * argv[])
void main(int argc, char * argv[])
{
    //tham so : ten tap tin, so phan tu tap tin
    //Speedup20250917.exe d:\Speedup.txt 200 filenameout.csv
    if (argc < 4)
        printf("%s filename sophantu filenameout.csv\n", argv[0]), exit(0);

    int SoPhanTuMang = atoi(argv[2]);
    if (SoPhanTuMang<=0)
        printf("So phan tu la so am\n"), exit(0);
    pdata_t pdata = (pdata_t)malloc(SoPhanTuMang *sizeof(data_t));
    if (!pdata)
        printf("Khong cap phat duoc bo nho\n"), exit(0);

    DocTapTin(argv[1],pdata, SoPhanTuMang);
    TinhSpeedupMangData(pdata, SoPhanTuMang);
    XuatData(pdata, SoPhanTuMang);
    XuatDataTapTin(argv[3], pdata, SoPhanTuMang);
    OpenExcel(argv[3]);
}

```

Ready Ln 198 Col 54 Ch 48 INS

```

Select C:\Windows\System32\cmd.exe
18, P , 0.19 , 3 , 2 ,0.81, 0.19, 1.15, 98, 1.23
19, P , 0.64 , 10 , 2 ,0.36, 0.64, 2.36, 91, 2.73

d:\NOI\Speedup20250917\Debug>Speedup20250917.exe d:\Speedup.txt 20 d:\Speedup.txt.csv
SP GiaTri SoCoreN Solantang
0 S 0.25 2 2
1 P 0.75 2 2
2 P 0.40 8 2
3 P 0.40 16 2
4 P 0.67 2 2
5 P 0.67 4 2
6 P 0.90 2 2
7 P 0.90 4 2
8 P 0.36 1 2
9 P 0.82 12 2
10 S 0.33 3 2
11 S 0.73 5 2
12 P 0.58 14 2
13 P 0.21 4 2
14 S 0.49 11 2
15 P 0.43 2 2
16 P 0.75 5 2
17 S 0.55 2 2
18 P 0.19 3 2
19 P 0.64 10 2
TT,SP,giatri,SoCoreN,Solantang,S, P, Speedup, SoCoreTang, NewSpeedup
0, S , 0.25 , 2 , 2 ,0.25, 0.75, 1.60, 10, 3.20
1, P , 0.75 , 2 , 2 ,0.25, 0.75, 1.60, 10, 3.20
2, P , 0.40 , 8 , 2 ,0.60, 0.40, 1.54, 93, 1.66
3, P , 0.40 , 16 , 2 ,0.60, 0.40, 1.60, 85, 1.66

```

Excel tự động chạy và mở file

The screenshot shows a Microsoft Excel window with the following details:

- File Tab:** AutoSave is off.
- Search Bar:** Speedup.txt... • Saved to this PC
- Comments & Share Buttons:** Sign in, Comments, Share
- Font & Style Buttons:** Calibri, Size 11, Bold, Italic, Underline, Font Color, Alignment, Number, Styles, Cells, Editing, Add-ins.
- Message Bar:** POSSIBLE DATA LOSS Some features might be lost if you save this workbook in the comma-delimited (.csv) format. To preserve these features, save it in an Excel file format. Don't show again, Save As...
- Table Data:**

	TT	SP	giatri	SoCoreN	Solantang S	P	Speedup	SoCoreTa	NewSpeedup	L	M	N	O	P	Q	R	S
1	TT	SP	0 S	0.25	2	2	0.25	0.75	1.6	10	3.2						
2			1 P	0.75	2	2	0.25	0.75	1.6	10	3.2						
3			2 P	0.4	8	2	0.6	0.4	1.54	93	1.66						
4			3 P	0.4	16	2	0.6	0.4	1.6	85	1.66						
5			4 P	0.67	2	2	0.33	0.67	1.5	99	2.97						
6			5 P	0.67	4	2	0.33	0.67	2.01	97	2.97						
7			6 P	0.9	2	2	0.1	0.9	1.82	4	4						
8			7 P	0.9	4	2	0.1	0.9	3.08	11	6.25						
9			8 P	0.36	1	2	0.64	0.36	1	100	1.55						
10			9 P	0.82	12	2	0.18	0.82	4.03	89	5.32						
11			10 S	0.33	3	2	0.33	0.67	1.81	98	2.97						
12			11 S	0.73	5	2	0.73	0.27	1.28	96	1.36						
13			12 P	0.58	14	2	0.42	0.58	2.17	87	2.35						
14			13 P	0.21	4	2	0.79	0.21	1.19	97	1.26						
15			14 S	0.49	11	2	0.49	0.51	1.86	90	2.02						
16			15 P	0.43	2	2	0.57	0.43	1.27	99	1.74						
17			16 P	0.75	5	2	0.25	0.75	2.5	96	3.88						

TT	SP	giatri	SoCoreN	Solantang S	P	Speedup	SoCoreTang	NewSpeedup
2	O S	0.25	2	2	0.25	0.75	1.6	10 3.2
3	1 P	0.75	2	2	0.25	0.75	1.6	10 3.2
4	2 P	0.4	8	2	0.6	0.4	1.54	93 1.66
5	3 P	0.4	16	2	0.6	0.4	1.6	85 1.66
6	4 P	0.67	2	2	0.33	0.67	1.5	99 2.97
7	5 P	0.67	4	2	0.33	0.67	2.01	97 2.97
8	6 P	0.9	2	2	0.1	0.9	1.82	4 4
9	7 P	0.9	4	2	0.1	0.9	3.08	11 6.25
10	8 P	0.36	1	2	0.64	0.36	1	100 1.55
11	9 P	0.82	12	2	0.18	0.82	4.03	89 5.32
12	10 S	0.33	3	2	0.33	0.67	1.81	98 2.97
13	11 S	0.73	5	2	0.73	0.27	1.28	96 1.36
14	12 P	0.58	14	2	0.42	0.58	2.17	87 2.35
15	13 P	0.21	4	2	0.79	0.21	1.19	97 1.26
16	14 S	0.49	11	2	0.49	0.51	1.86	90 2.02
17	15 P	0.43	2	2	0.57	0.43	1.27	99 1.74
18	16 P	0.75	5	2	0.25	0.75	2.5	96 3.88
19	17 S	0.55	2	2	0.55	0.45	1.29	99 1.8
20	18 P	0.19	3	2	0.81	0.19	1.15	98 1.23

Speedup20250917 - Microsoft Visual Studio

```

int TangSoCore(double CurrentSpeedup, int NumCore, int ntime)
{
    if (ntime <= 0)
        return 0;
    double S = TinhSFromSpeedUp(CurrentSpeedup, NumCore);
    double LimitSpeedup = CurrentSpeedup * ntime; // 1/S
    int i = NumCore;
    double Speedup = CurrentSpeedup;
    while ((Speedup < LimitSpeedup) && (i<=100))
    {
        i++;
        Speedup = TinhSpeedupSN(S, i);
    }
    return i- NumCore;
}
void TestSpeedupS() { ... }
void TestSpeedupP() { ... }
void TestTinhSFromSpeedUp() { ... }

```

Ready Ln 45 Col 37 Ch 34 INS

- Lập trình đa tiêu trình cho mảng dữ liệu để tính Speedup (CreateThread)

Speedup20250917 - Microsoft Visual Studio

```

typedef struct _param_t
{
    pdata_t pdata;
    int Init;
    int Step;
    int Num;
} param_t, * pparam_t;
DWORD WINAPI TinhSpeedupThreadProc(LPVOID lpParam)
{
    printf("ThreadID = %ld\n", GetCurrentThreadId());
    pparam_t p = (pparam_t)lpParam;
    for (int i = p->Init; i < p->Num; i+=p->Step)
        TinhSpeedupData(p->pdata + i);

    return 0;
}
void TinhSpeedupMangDataMT(pdata_t p, int n, int NumThread)

```

Ready Ln 228 Col 31 Ch 22 INS

```

void TinhSpeedupMangDataMT(pdata_t p, int n, int NumThread)
{
    HANDLE * h = (HANDLE *)malloc(NumThread * sizeof(HANDLE));
    DWORD * dwID = (DWORD *)malloc(NumThread * sizeof(DWORD));
    pparam_t param = (pparam_t)malloc(NumThread * sizeof(param_t));
    for (int i = 0; i < NumThread; i++)
    {
        param[i].pdata = p;
        param[i].Init = i;
        param[i].Step = NumThread;
        param[i].Num = n;
        h[i] = CreateThread(NULL, 0, TinhSpeedupThreadProc,
                            (LPVOID)&param[i], 0, &dwID[i]);
    }
    WaitForMultipleObjects(NumThread, h, TRUE, INFINITE);
}

```

```

void main(int argc, char * argv[])
{
    //them so : ten tap tin, so phan tu tap tin
    //Speedup20250917.exe d:\Speedup.txt 200 filenameout.csv 4
    if (argc < 5)
        printf("%s filename sophantu filenameout.csv NumThread\n",
               argv[0]), exit(0);
    int SoPhanTuMang = atoi(argv[2]);
    if (SoPhanTuMang<=0)
        printf("So phan tu la so am\n"), exit(0);
    pdata_t pdata = (pdata_t)malloc(SoPhanTuMang * sizeof(data_t));
    if (!pdata)
        printf("Khong cap phat duoc bo nho\n"), exit(0);
    DocTapTin(argv[1],pdata, SoPhanTuMang);
    //TinhSpeedupMangData(pdata, SoPhanTuMang);
    int NumThread = atoi(argv[4]);
    if ((NumThread <= 0)|| (NumThread >= 100))
        NumThread = 4;
    TinhSpeedupMangDataMT(pdata, SoPhanTuMang, NumThread);
    //XuatData(pdata, SoPhanTuMang);
    XuatDataTapTin(argv[3], pdata, SoPhanTuMang);
    OpenExcel(argv[3]);
}

```

//filechay.exe filename.txt sophantu filenameout.csv NumThread

Speedup20250917.exe Speedup.txt 200 Speedup.txt.csv 10

```
C:\Windows\System32\cmd.exe
d:\NOI\Speedup20251001\Debug>Speedup20250917.exe Speedup.txt 200 Speedup.txt.csv 10
```

Kết quả:

```
C:\Windows\System32\cmd.exe
183 P 0.09 7 2
184 S 0.83 7 2
185 P 0.91 16 2
186 P 0.32 16 2
187 S 0.26 15 2
188 S 0.45 14 2
189 S 0.68 5 2
190 S 0.97 15 2
191 S 0.12 17 2
192 S 0.52 7 2
193 P 0.40 13 2
194 S 0.56 20 2
195 P 0.99 6 2
196 P 0.20 13 2
197 P 0.95 10 2
198 S 0.24 15 2
199 S 0.95 4 2
ThreadID = 10124
ThreadID = 8164
ThreadID = 10116
ThreadID = 13792
ThreadID = 2152
ThreadID = 15328
ThreadID = 3612
ThreadID = 9544
ThreadID = 12668
ThreadID = 15264
d:\NOI\Speedup20251001\Debug>
```

TT	SP	giatri	SoCoreN	Solantang	S	P	Speedup	SoCoreTa	NewSpeedup
0	S	0.25	2	2	0.25	0.75	1.6	10	3.2
1	P	0.75	2	2	0.25	0.75	1.6	10	3.2
2	P	0.4	8	2	0.6	0.4	1.54	93	1.66
3	P	0.4	16	2	0.6	0.4	1.6	85	1.66
4	P	0.67	2	2	0.33	0.67	1.5	99	2.97
5	P	0.67	4	2	0.33	0.67	2.01	97	2.97
6	P	0.9	2	2	0.1	0.9	1.82	4	4
7	P	0.9	4	2	0.1	0.9	3.08	11	6.25
8	P	0.36	1	2	0.64	0.36	1	100	1.55
9	P	0.82	12	2	0.18	0.82	4.03	89	5.32
10	S	0.33	3	2	0.33	0.67	1.81	98	2.97
11	S	0.73	5	2	0.73	0.27	1.28	96	1.36
12	P	0.58	14	2	0.42	0.58	2.17	87	2.35
13	P	0.21	4	2	0.79	0.21	1.19	97	1.26
14	S	0.49	11	2	0.49	0.51	1.86	90	2.02
15	P	0.43	2	2	0.57	0.43	1.27	99	1.74
16	P	0.75	5	2	0.25	0.75	2.5	96	3.88
17	S	0.55	2	2	0.55	0.45	1.29	99	1.8
18	P	0.19	3	2	0.81	0.19	1.15	98	1.23

//=====Socket =====

```
#pragma comment(lib, "Ws2_32.lib")
```

```

//=====Socket =====
typedef struct _request_t
{
    char SP;
    double giatri;
    int SoCoreN;
    int Solantang;
} request_t, *prequest_t;

typedef struct _reply_t
{
    double S;
    double P;
    double Speedup;
    int SoCoreTang;
    double NewSpeedup;
} reply_t, *preply_t;

int InitializeWinsock()

```

Speedup20250917 - Microsoft Visual Studio

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Speedup20250917 (Global Scope) InitializeWinsock()

```
int InitializeWinsock()
{
    WSADATA wsa;
    printf("\nInitializing Winsock...");
    if (WSAStartup(MAKEWORD(2, 2), &wsa) != 0)
    {
        printf("Failed. Error Code : %d", WSAGetLastError());
        exit(-1);
        return 0;
    }
    printf("Initialized.");
    return 1;
}

SOCKET SocketConnect(char * strServerIPAddress, u_short port)
{
    SOCKET s;
    if ((s = socket(AF_INET, SOCK_STREAM, 0)) == INVALID_SOCKET)
    {
        printf("Could not create socket : %d", WSAGetLastError());
    }
}
```

Ready

146 %

Ln 242 Col 24 Ch 24 INS

Speedup20250917 - Microsoft Visual Studio

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Speedup20250917 (Global Scope) SocketConnect(char * strServerIPAddress, u_short port)

```
if ((s = socket(AF_INET, SOCK_STREAM, 0)) == INVALID_SOCKET)
{
    printf("Could not create socket : %d", WSAGetLastError());
    exit(-1);
}
printf("Socket created.\n");
struct sockaddr_in server;
server.sin_addr.s_addr = inet_addr(strServerIPAddress);
server.sin_family = AF_INET;
server.sin_port = htons(port);
//Connect to remote server
if (connect(s, (struct sockaddr *)&server, sizeof(server)) < 0)
{
    puts("connect error");
    return 1;
}
puts("Connected");
return s;
}

void main1(int argc, char * argv[])
{
```

Ready

146 %

Ln 271 Col 6 Ch 3 INS

Speedup20250917 - Microsoft Visual Studio

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Speedup20250917 (Global Scope) Solution Explorer

Speedup.cpp

```
void main()
{
    InitializeWinsock();
    request_t req;
    req.SP = 'S';
    req.giatri = 0.25;
    req.SoCoreN = 2;
    req.Solantang = 2;

    char * SVRIPAddress = "172.17.14.54"; // Doi IP => dong lenh
    u_short port = 54321; // Port chua dung

    SOCKET svrsocket = SocketConnect(SVRIPAddress, port);
    send(svrsocket, (char*)&req, sizeof(req), 0);
    reply_t rep;
    recv(svrsocket, (char*)&rep, sizeof(rep), 0);

    printf("Req: SP = %c , giatri = %.2lf , Socore = %d ,Solantang = %d\n",
        req.SP, req.giatri, req.SoCoreN, req.Solantang);
}
```

Properties Solution Explorer Team Explorer Class View Properties C++ Solution Explorer Team Explorer Class View Properties C++

Ready Ln 271 Col 6 Ch 3 INS

Speedup20250917 - Microsoft Visual Studio

File Edit View Project Build Debug Team Tools Test Analyze Window Help

Speedup20250917 (Global Scope) Solution Explorer

Speedup.cpp

```
req.SoCoreN = 2;
req.Solantang = 2;

char * SVRIPAddress = "172.17.14.54"; // Doi IP => dong lenh
u_short port = 54321; // Port chua dung

SOCKET svrsocket = SocketConnect(SVRIPAddress, port);
send(svrsocket, (char*)&req, sizeof(req), 0);
reply_t rep;
recv(svrsocket, (char*)&rep, sizeof(rep), 0);

printf("Req: SP = %c , giatri = %.2lf , Socore = %d ,Solantang = %d\n",
    req.SP, req.giatri, req.SoCoreN, req.Solantang);

printf("Reply: S = %.2lf, P = %.2lf, Speedup = %.2lf, SoCoreTang = %d, NewSpeedup =
    rep.S, rep.P, rep.Speedup, rep.SoCoreTang, rep.NewSpeedup);

closesocket(svrsocket);
WSACleanup();
```

double _reply_t::NewSpeedup

Properties Solution Explorer Team Explorer Class View Properties C++ Solution Explorer Team Explorer Class View Properties C++

Ready Ln 271 Col 6 Ch 3 INS

C:\WINDOWS\system32\cmd.exe

```
Initializing Winsock...Initialized.Socket created.  
Connected  
Req: SP = S , giatri = 0.25 , Socore = 2 ,Solantang = 2  
Reply: S = 0.25, P = 0.75, Speedup = 1.60, SoCoreTang = 10, NewSpeedup = 3.20  
Press any key to continue . . .
```