Diagnostics & Stability-Test Card

User's Manual Version 1.1

Advanced and Unique, Please read this Manual before using.

Chinese Patent for Invention：03126857.9
Certificate Number：208776

Made by QiGuan Electronics Co., Ltd

Preface

Thanks for choosing Diagnostics & Stability-Test Card(DSTC) of QiGuan Electronics Co., Ltd. If you have any question please visit our website www.pc-diagnosis.com for detailed information, or send e-mail to p678@163.net. We will give you answer as soon as possible. Thanks for your trust and support!

DSTC of QiGuan Electronics Co., Ltd is kind of high performance product that can troubleshoot failures and test the stability of computers. And it is simple and easy to use. Using ultra-large-scale IC integrated module, DSTCs are really top quality products. They are compact-structured, stable and reliable, and have more richer internal resources, more excellent anti-jamming performance, and lower rate of self errors. All software are built-in, the users do not need to install software. Combining advanced technology and user behavioral science, the functional design is humanized to be convenient and user friendly.

QiGuan Electronics Co., Ltd is specialized in research, development and production marketing of PC diagnostic cards, her main series of products like New Generation PC Diagnostic Card, Kingnostic Card and DSTC are under the protection of national patent(Patent NO., 03126857.9) and CE certified. We do not produce traditional products any more, all users please pay attention to the Logo “ 奇冠” and the anti-counterfeit label. The specification and other information mentioned in this manual is just for reference. Its real content will be updated regularly without further notice. For latest product information please visit our website www.pc-diagnosis.com.

Welcome to visit the website of QiGuan Electronics Co., Ltd

http://www.pc-diagnosis.com

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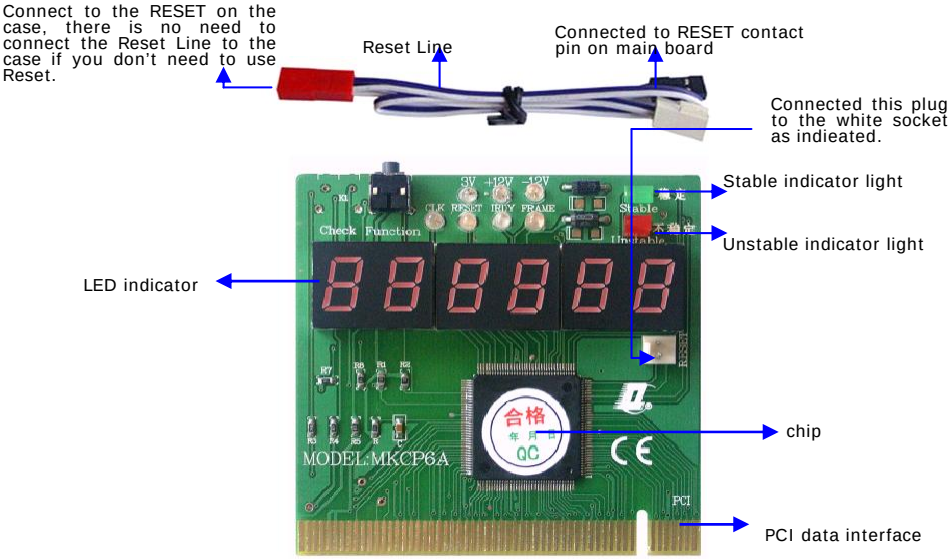
I. Introduction of DSTC Components

Picture of DSTC Components（MKCP6A for example）

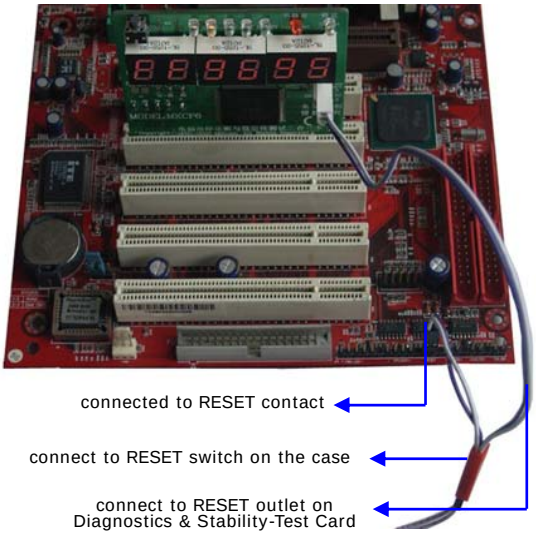


Real product may differ to the picture, please refer to the real product. Our products will be improved without further notice.

How to connect the motherboard and DSTC

Pay attention the connection of motherboard and DSTC!

Please pay attention to the connection of the RESET line.



II. Features of DSTC

I) Features of Stability Test

1) It's simple to identify the test result-red indicator light means "unstable" and green indicator light means "stable". When the "red" and "green" flashes alternatively and quickly, the DSTC is testing the stability.
2) DSTC can tell you whether your computer is stable or not, no matter you computer works now stably or unstably. And it also can help find the factors, not matter they are invariable factors or variable factors such as occasional and invisible potential factors.
3) It works more efficiently and stably than traditional PC Diagnostic Card. It never stops in testing.
4) It is independent of the Reset Signal of the test computer, so the abnormal reset logic of the test computer will not influence the test. It can correct failures and prevent pulse loss automatically. Resetting the test computer during testing will not influence the stability test.
5) It is independent of Windows System or other software, and it is able to troubleshoot even the screen is blank.
6) Unprecedented compatibility. It is compatible with all kinds of high, middle and low classes of motherboards in the market, and shows more accurate failure codes. There is even no exception for Intel 9XX series that represent the mainstream of top motherboards (such as SIS671) which can not be tested by the traditional PC diagnostic card.
7) It is good helper to choose quality computers and computer accessories, e.g. memory banks, hard disks,

keyboards, and even the external equipments such as UPS, printers and computers used for ATM. And it also can help the sellers sell their computers by proving the stability.

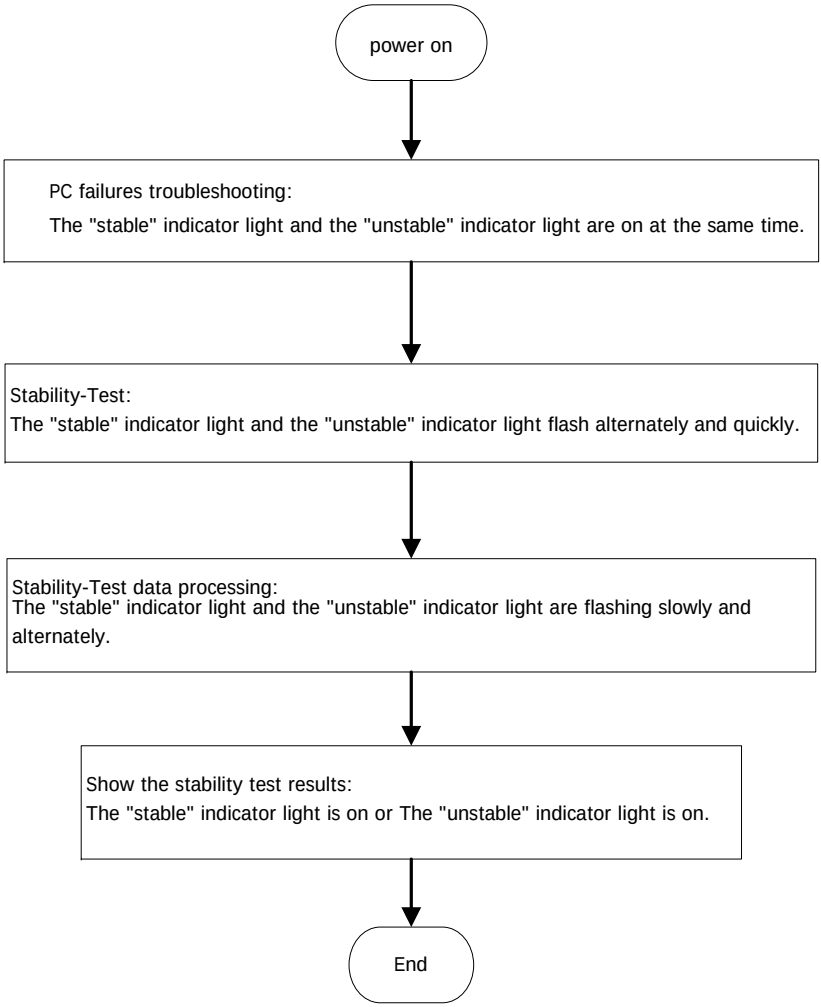
II) Features of Indicator lights

Indicator Light	Signal	Illustration
3V	power	Special 3.3V voltage of motherboards that have PCI slot. The indicator light will be always on when power on. Part of the motherboards that have PCI slot have no 3.3V voltage, so the indicator light will be off.
+12V	power	The indicator will be always on when power on. Part of the motherboards that have PCI slot have no 3.3V voltage, so the indicator light will be off.
-12V	power	The indicator will be always on when power on. Part of the motherboards that have PCI slot have no 3.3V voltage, so the indicator light will be off.
CLK	Bus clock	The CLK will be on when there is clock signal impulse, and will be off when there is no clock signal impulse, no matter the current signal stays at high or low level, which won't mislead the user that there is clock signal impulse.
RESET	Reset	It is normal that the indicator light is on for a half second and then become off when start the computer or press the RESET. If the indicator light is never off, usually it is because the Reset Contact Pin on the main board is pinned to the Accelerate Switch or the Reset Circuit is damaged.
Unstable	Unstable	If the test computer is not stable, there is potential errors, or the accessories do not match with the host, the "unstable" indicator light will be on.
Stable	stable	The test computer is stable and no potential errors, the "stable" indicator light will be on.

III)Features of Troubleshooting

1) There are two digit display, four digit display and 6 digit display for your option.
2) There are Reset indicator, CLK indicator, 3V indicator, +12V indicator and -12V indicator The Reset indicator and CLK indicator have been completely upgraded. The CLK indicator is 100% correct and will not mislead the users. The users can see the clock pulse fluctuation clearly, even the single 10ns clock pulse. The CLK indicator will be off when there is no CLK signal impulse, no matter the current signal stays at high or low level. No pulse loss, no unwanted pulse.
3) Thoroughly eliminated random initial code that mislead the user in troubleshooting.
4) It can troubleshoot the failures from the motherboard even without CPU.
5) Functional limitation of traditional PC Diagnostic Cards has been broken, e.g. we have created standard PCI interface and varieties of auxiliary parts that enhance the accuracy and reliability of PC Diagnostic Cards. And part of its functions depend on BIOS no more, and never limit to POST contents and manners of BIOS.
6) Support port 80h, 84h and 300h.

III. Stability Test Flowchart



Note: This flowchart is only applicable to PCs without hard disk.

VI. Meaning of Test Results

1. Meaning of POST Codes and Analysis & Solution of Stability Test Result

NO.	code	Stability Indicator Light	RESET	CLK	3V	12V	-12V	5V (LED) on/off	Meaning	Reason	Solution
1	OK code	stable	on for half a second then off	flashed	on	on	on	on	normal	-------	suggest regular or irregular test of stability.
2	OK code	unstable	on for half a second then off	flashed	on	on	on	on	no error is detected, but not stable	1. motherboard and its accessories are in poor contact	check the motherboard and its accessories and see if they are contacted well.
										2. error of instability	Refer to figure 2
										3. Bad test card	return to the supplier
3	Error code	stable	on for half a second then off	Random	on	on	on	on	detected errors, but no errors of instability	motherboard error	eliminate the errors according to POST codes
4	Error code	unstable	on for half a second then off	Random	on	on	on	on	detected errors, including errors of instability	1. Reset Line connected wrong or not connected	check the Reset Line and see if it is connected rightly
										2. Only error of instability	Refer to Figure 2
										3. Including errors of instability and other errors	Eliminate the errors according to POST codes and Figure 2

2. Status of Stability Test

No.	Code	Stability Indicator Light	RESET	CLK	3V	12V	-12V	5V (LED) on/off	Meaning	Cause	Solution
1	Random	Green and Red both on	on for half a second then off	Flashed	on	on	on	on	in troubleshooting	-------	No need
2	Random	Flash alternately and quickly	on for half a second then off	Flashed	on	on	on	on	in stability test	-------	No need
3	Random	Flash alternately and slowly	on for half a second then off	Flashed	on	on	on	on	Interior data processing Stability test	-------	No need

4	Random	the "stable" indicator and the "unstable" indicator are never off or never on.	Random	Random	Random	Random	Random	Random	Abnormal diagnostic function	1. Dirty PCI or PCI in poor contact	wipe PCI with rubber or plug in and pull out repeatedly to make it in good contact
										2. Bad Diagnostic card	Return to the supplier

3. Status of Indicator Lights

No.	Code	"Stable" Indicator Light	RESET	CLK	3V	12V	-12V	5V Indicator Light on/off	Meaning	Cause	solution
1	Random	Random	Never been on	Random	Random	Random	Random	Random	NO Reset Signal	1. Bad contact	wipe PCI with rubber or plug in and pull out repeatedly to make it in good contact
										2. Bad Reset circuit	Refer to Figure 5
										3. Bad Diagnostic Card	Return to the supplier
2	Random	Random	Never been off	Random	Random	Random	Random	Random	Reset keeps on	1.Bad Reset Circuit	Refer to Figure 5
										2.Bad Diagnostic Card	Return to the supplier
3	Random	Random	Give no notice	Give no notice	**off**	Give no notice	Give no notice	on	3V power abnormal	1. PCI in poor contact	wipe PCI with rubber or plug in and pull out repeatedly to make it in good contact
										2.Bad Diagnostic Card	Return to the supplier
										3. No 3V power (old main board)	Normal, no need to handle with it
										4. short circuit of 3V power	repair the chip
										5. Bad 3V power	retry after change of the power

4	Random	Random	Give no notice	Give no notice	Give no notice	**off**	Give no notice	on	12V abnor-mal	1. PCI in poor contact	wipe PCI with rubber or plug in and pull out repeatedly to make it in good contact
										2. bad diagnostic card	Return to the supplier
										3. short circuit of 12V power	repair the chip
										4. bad 12V power	retry after change of the power
5	Random	Random	Give no notice	Give no notice	Give no notice	Give no notice	**off**	on	-12V abnor-mal	1. PCI in poor contact	wipe PCI with rubber or plug in and pull out repeatedly to make it in good contact
										2. Bad diagnostic card	Return to the supplier
										3. short circuit of -12V power	repair the chip
										4. Bad -12V power	retry after change of the power

V. Basic Operation Flowchart

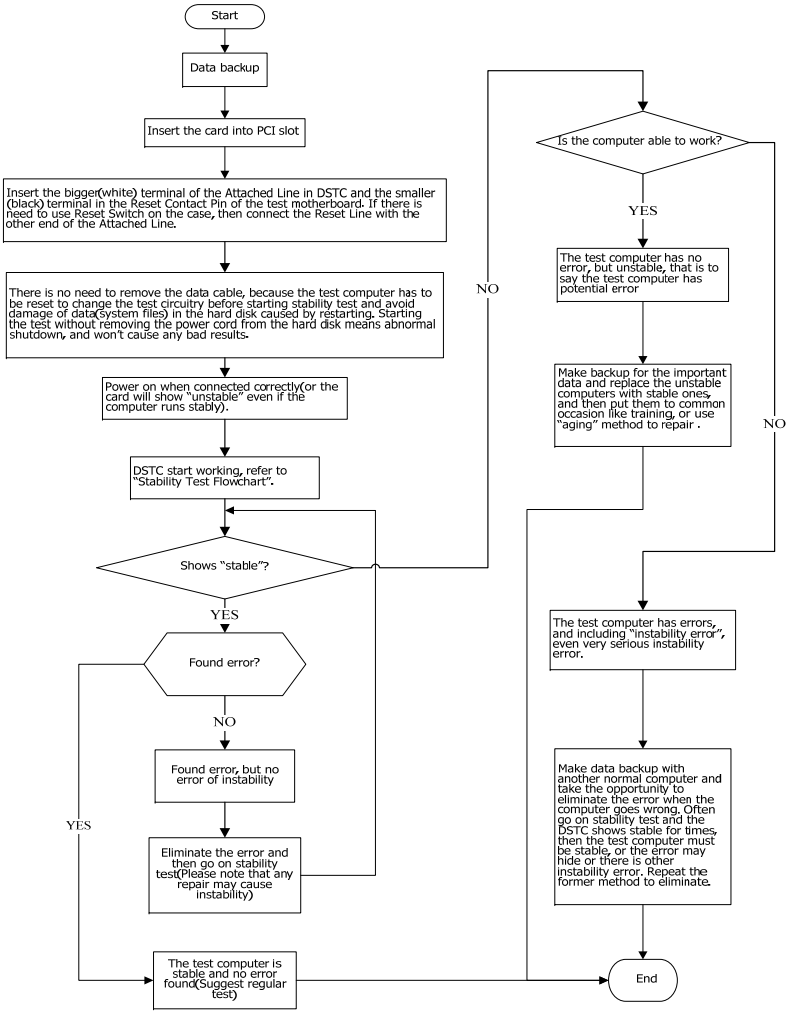


Figure 1 General Flowchart

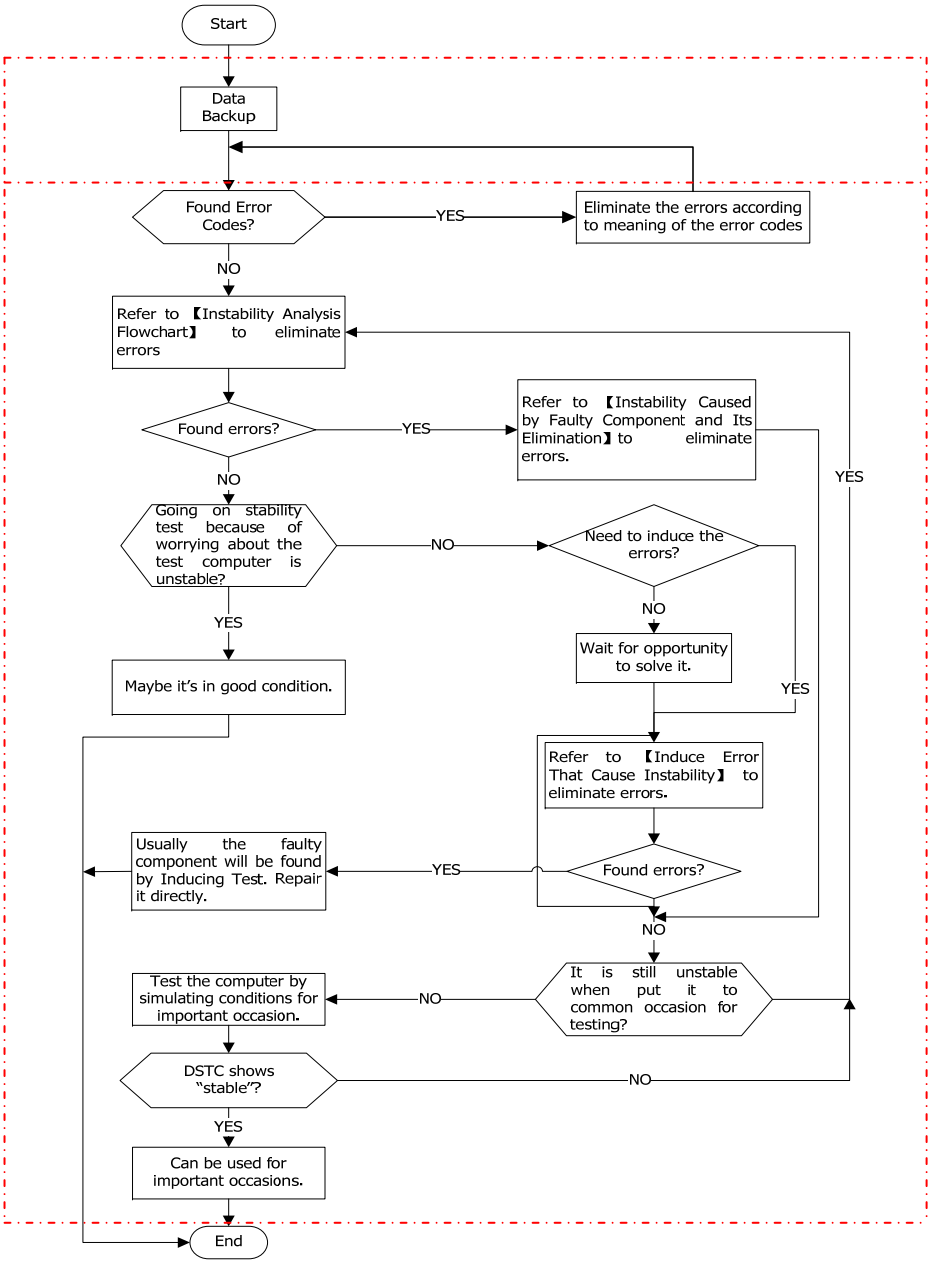


Figure 2 Instability Analysis

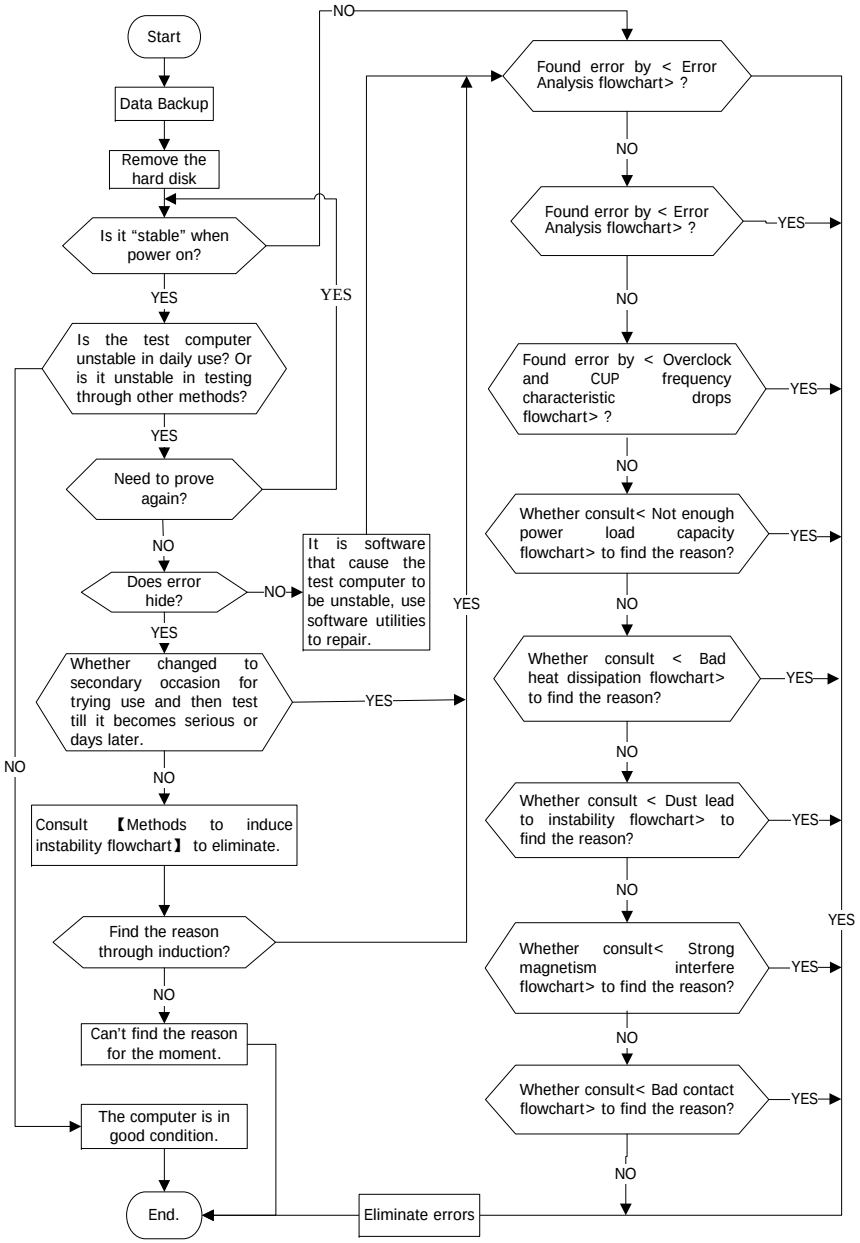


Figure 3 Unstable Components Analysis

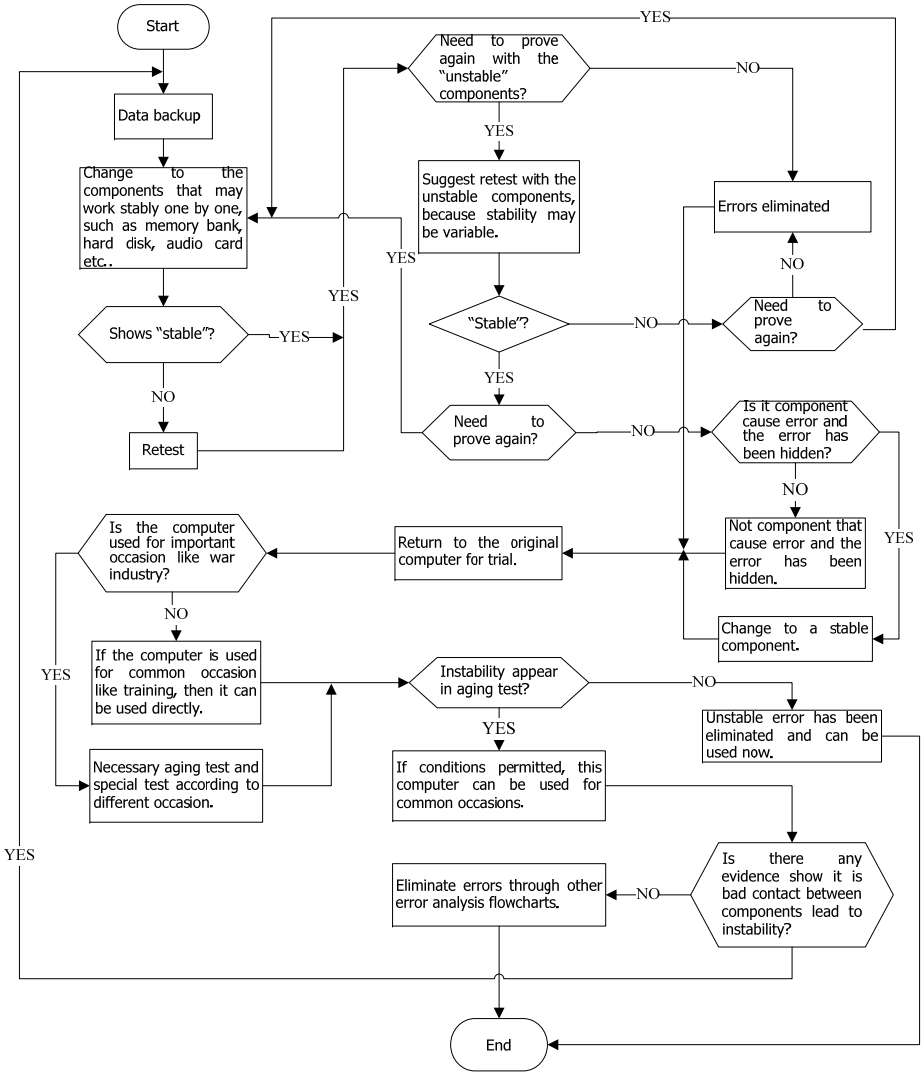


Figure 4 Method To Induce Instability

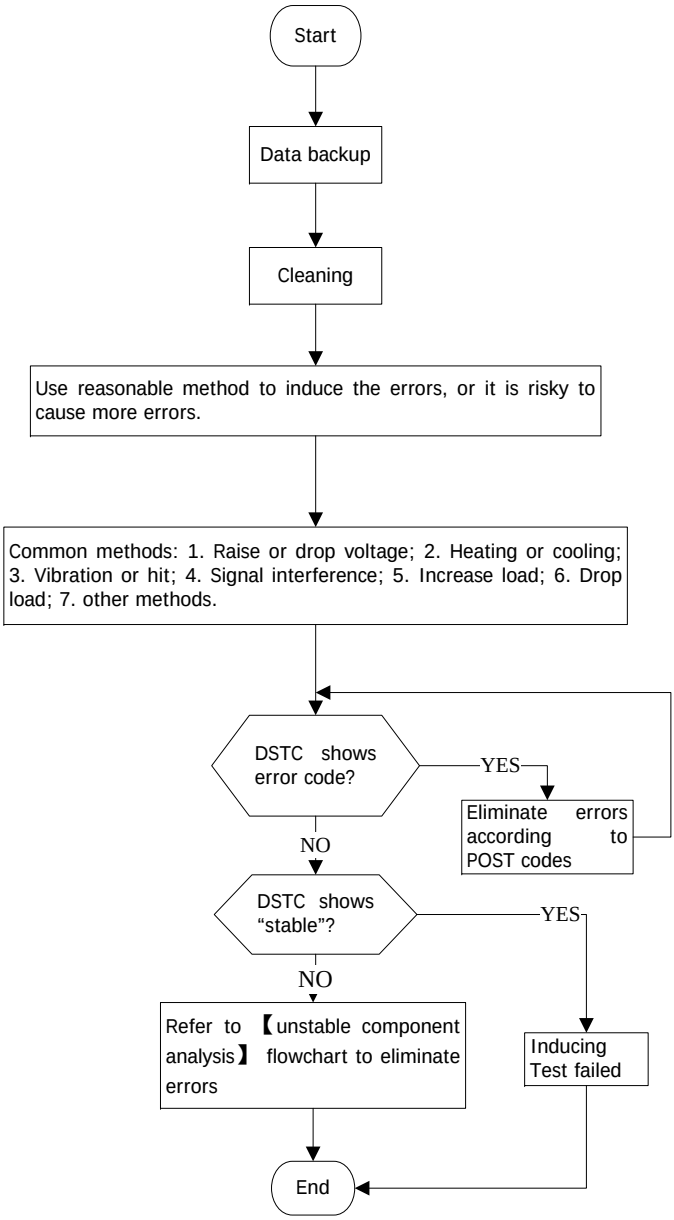


Figure 5 Reset Error Analysis

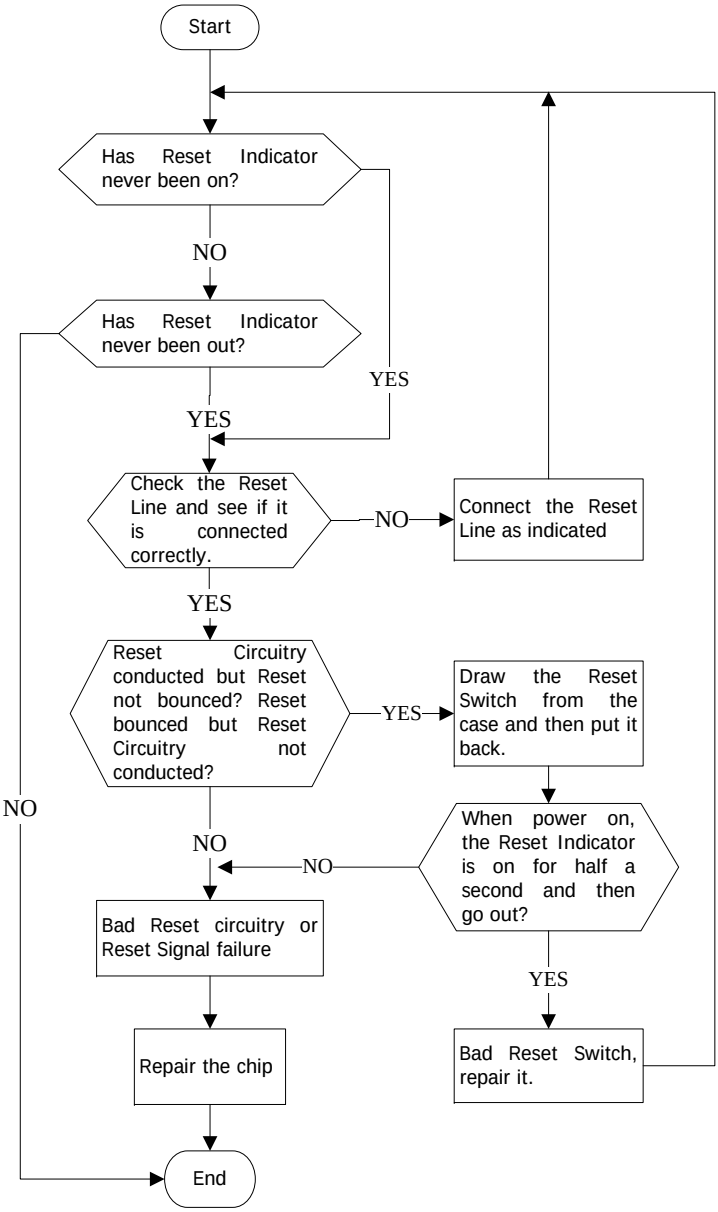


Figure 6 AC Error Analysis

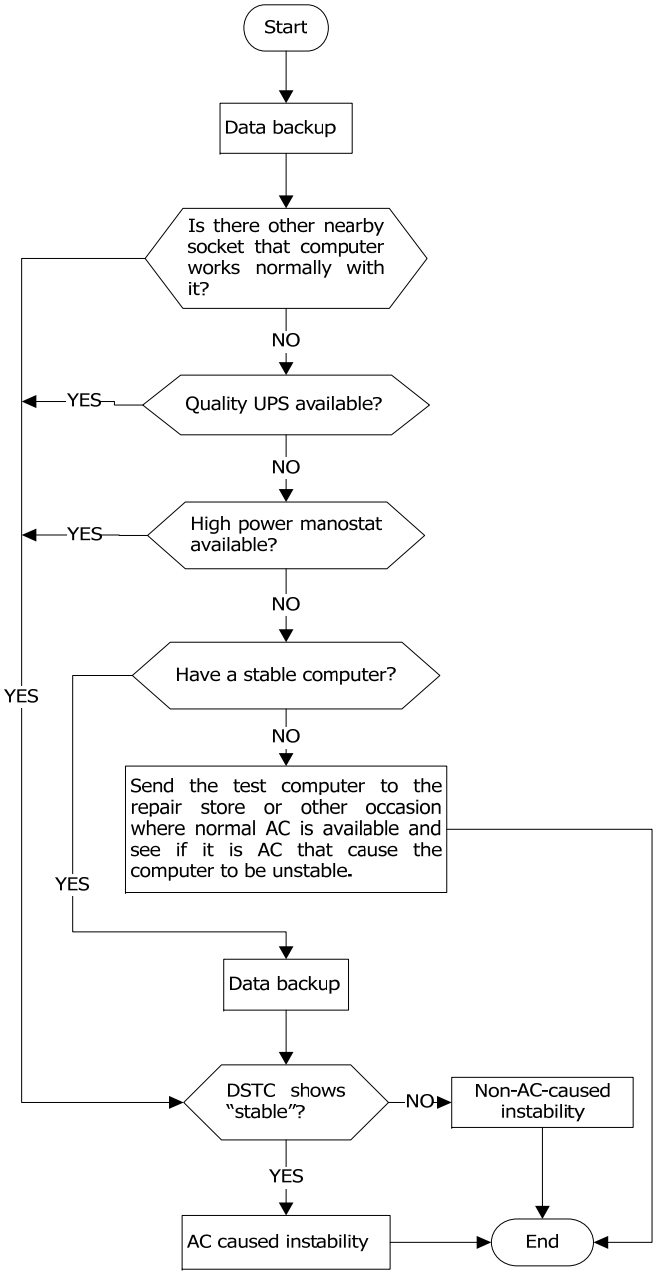


Figure 7 Mixed Memory Bank

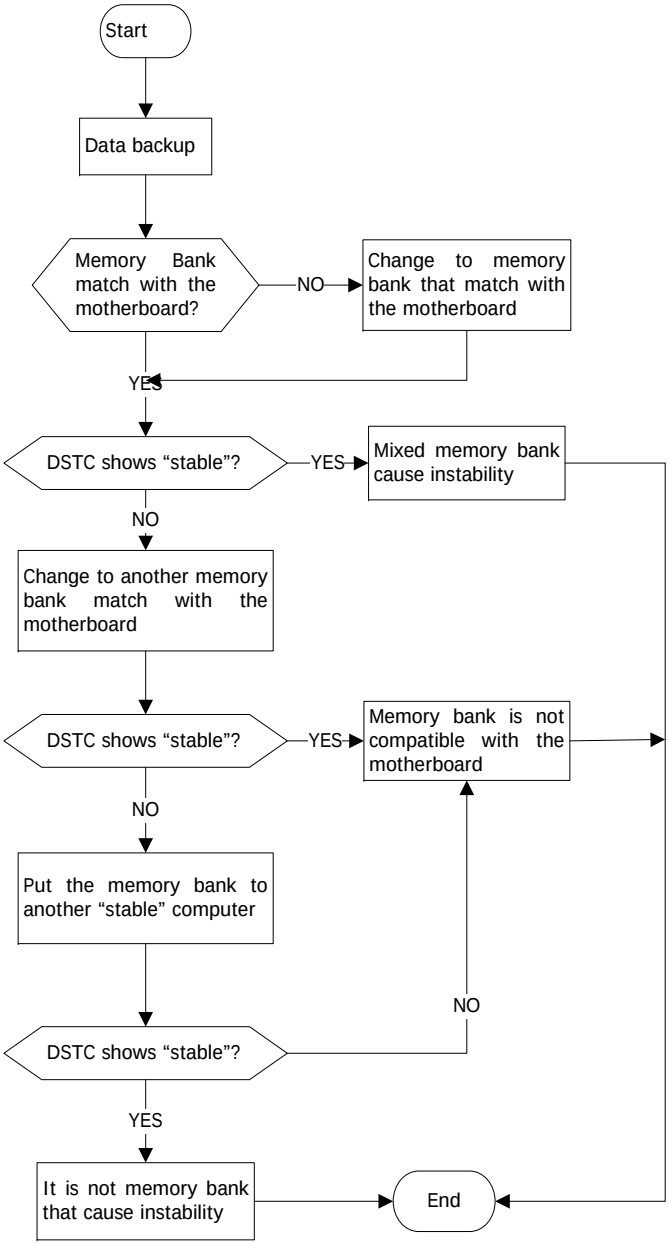


Figure 8 Not Enough Power Load Capacity?

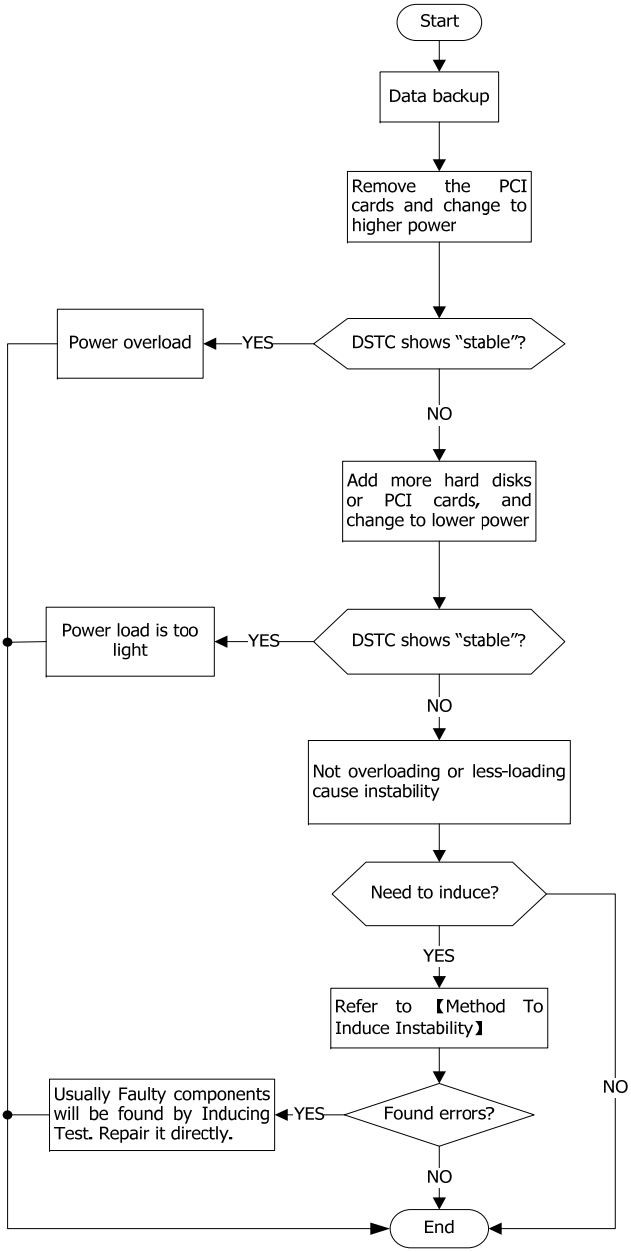


Figure 9 Bad Heat Dissipation?

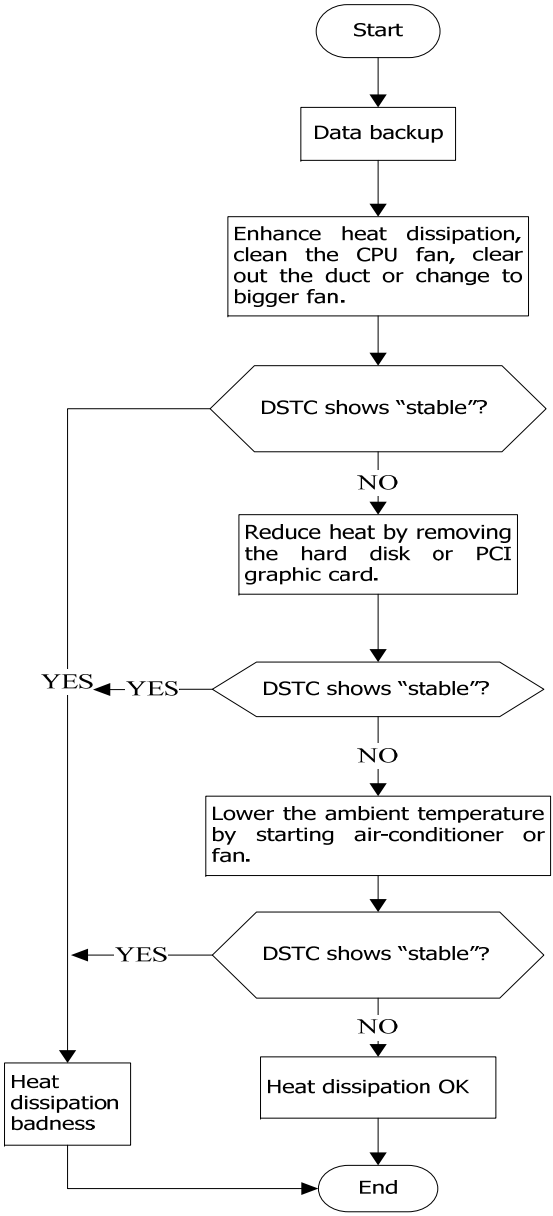


Figure 10 Dust Lead to Instability?

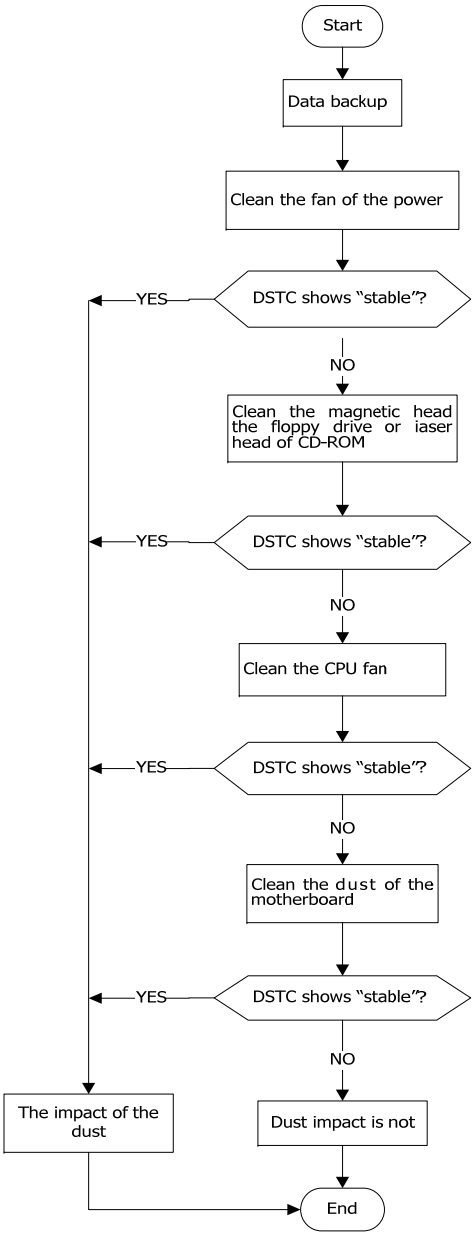


Figure 11 Magnetic Disturbance?

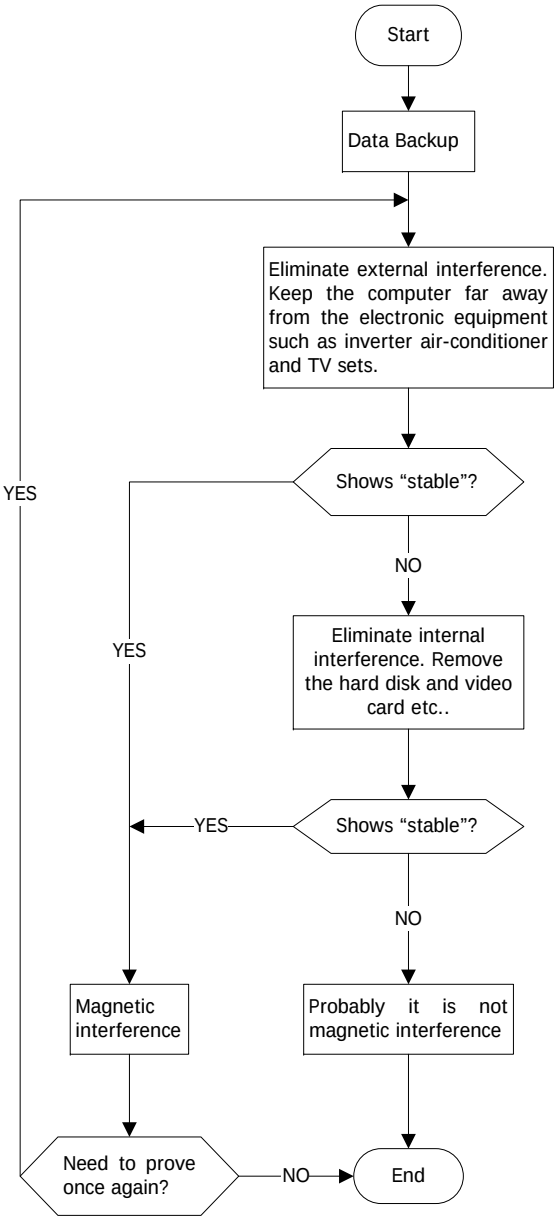
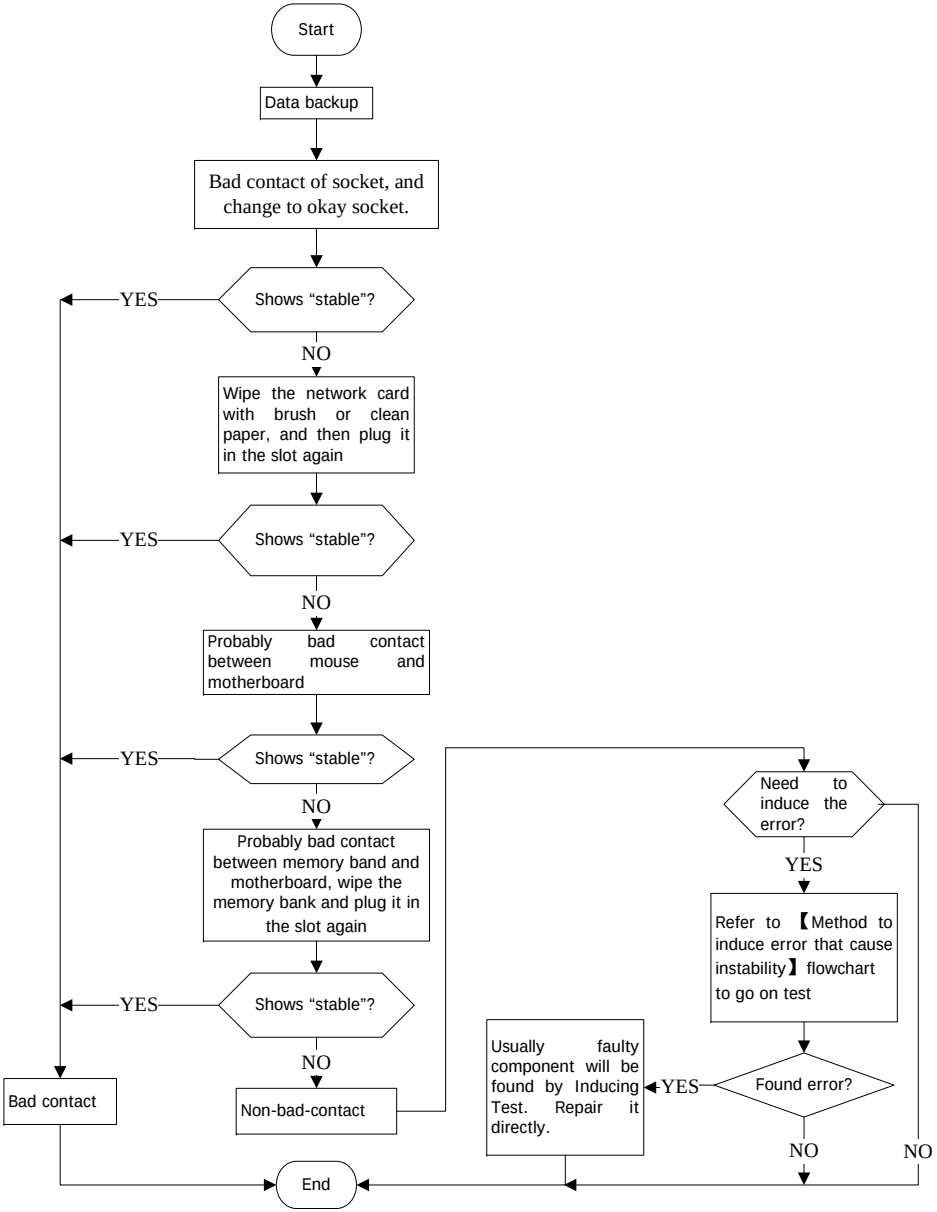
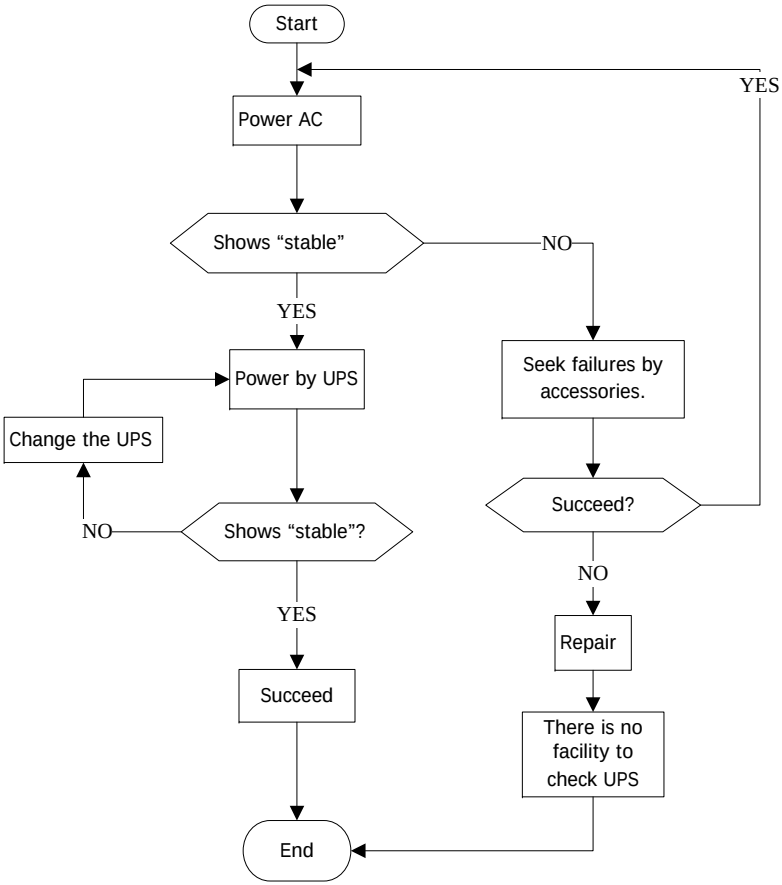


Figure 12 Error Caused by Bad Contact?

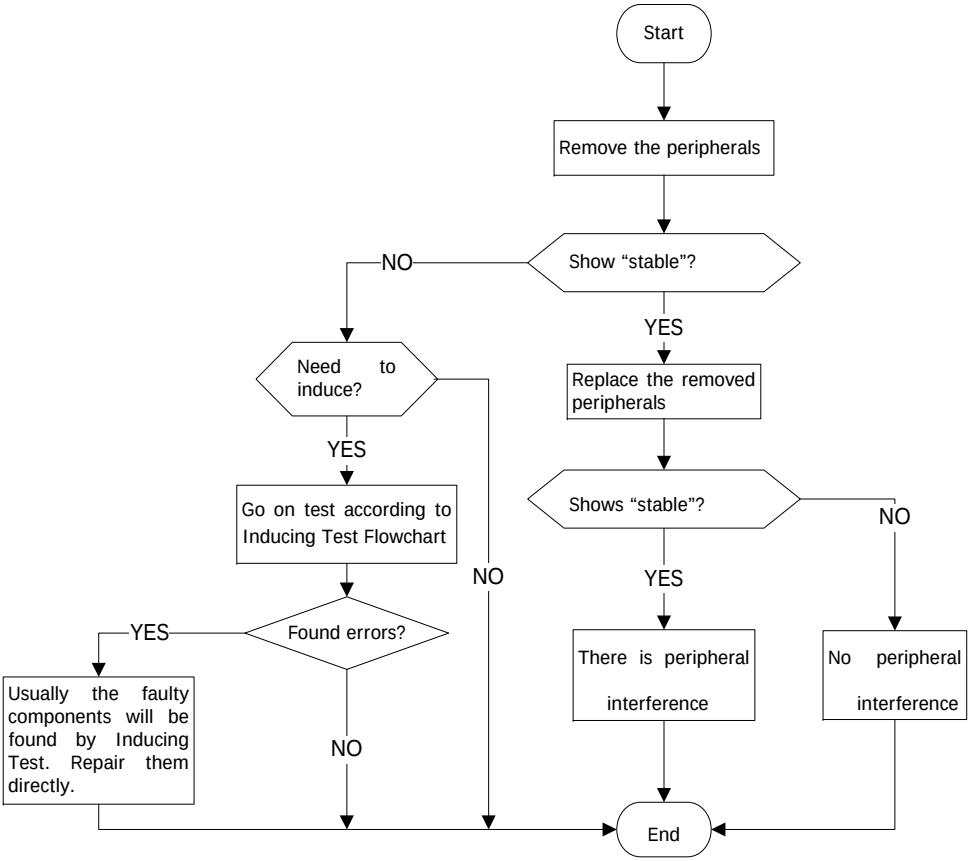


VI. FAQ and Solutions

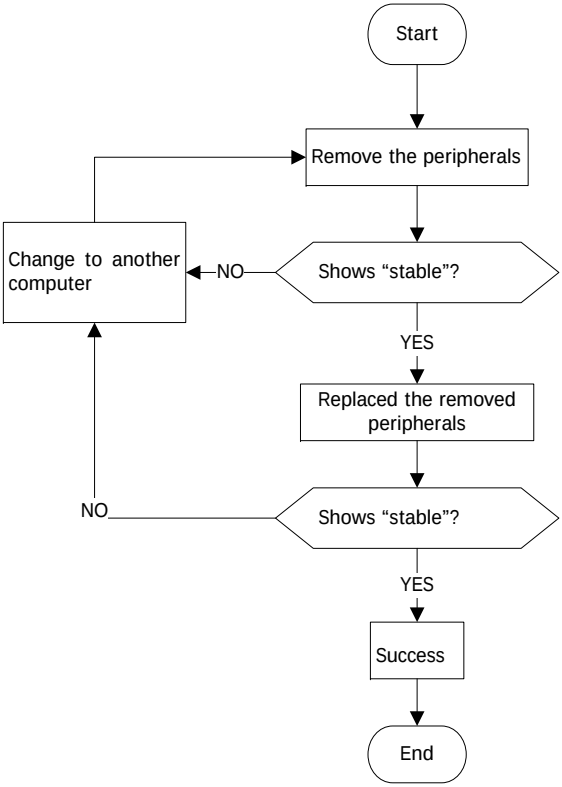
1. How to choose “stable” UPS with DSTC?



2. How to check the peripheral disturbance with DSTC?



3. How to choose computers used for important occasions with DSTC?



4. Going on the test without removing the hard disk from the computer has any influence on the computer?

Answer: Going on the test without removing the hard disk means abnormal shutdown. No other bad results. We suggest removing the hard disk from the computer before test.

5. Why the normal computer go wrong when the case is opened?

Answer: After a long period of usage, the copper foil will be decayed by the dry battery. Though the circuitry is ok, hit and vibration will lead to bad contact during opening the case. Please make data backup before opening the case to clean dust or replace the hardware.

6. How to purchase DSTC?

Answer: If you are going to use it for repair, we suggest that you buy motherboards without components. If you need to fix it on the host, you'd better buy the models with external LEDs fixed on the hob.

7. Why the Clock Indicator needs to be improved, and what's the advantages of improvement?

Answer: Clock signal of the PCI Bus is usually through the ways bellow.

1. Traditional motherboard use static Clock. There is always clock signal no matter if PCI slot is plugged with expansion card or not, and the expansion card is working or not. Now most of the existing motherboards use dynamic Clock. There is Clock Signal when it is working, and there is no Clock Signal when it is off.
2. Unlike data signal, control signal, and other Bus Signals, under general circumstances there will be Clock Signal immediately when power on successfully, and it will keep on until the Reset Signal is out. Even if you press the Reset and never loose it, the Clock Signal will bring out.

Some traditional diagnostic cards have two design defects.

1. Clock Signal is too fast to catch by naked eyes, which always mislead users that there is no Clock Signal.
2. When the Clock Signal is out, traditional Clock Indicator will be on no matter if it stays at high or low level, which will mislead users that there is Clock Signal.

The Clock Signal of DSTC has been enhanced to be 100% accurate, and won't mislead the users. The users can see it clearly when the Clock Signal Pulse fluctuates, even if it is 10ns pulse(100 M, PCI Bus utmost 66 M). When there is no Clock Signal, the Clock Indicator is off no matter if it stays at high or low level, which won't mislead the users. No loss of pulse, and no unneeded pulse.