



17.5 Intel Material Declaration Data Sheets

The Material Declaration Data Sheets (MDDS) contained in this chapter are based upon the format established by the Electronic Industries Alliance (EIA), The European Information and Communication Technology Association (EICTA) and the Japan Green Procurement Survey Standardization Initiative (JGPSSI). This format is published as the Joint Industry Guide for Material Composition Declaration and can be found at: <http://www.eia.org/resources/2003-09-19.10.pdf>

Most of the data sheets contained in this chapter are based on third-party analytical testing of the product specified in footnote #2 of each MDDS. If a product is not specified in footnote #2, the data listed in that MDDS are based on engineering estimates. Data sheets are organized by representative package types which cover the range of similar products. Since multiple products may be covered by a data sheet, data are reported in parts per million (ppm). Mass of the product is provided. Mass of individual materials can be calculated by the user as needed.

MDDSs for other package families will be added to this chapter as they become available. In addition, existing MDDSs will be updated periodically as additional data becomes available. Users of MDDS are responsible for consulting this chapter regularly to ensure they are using the most recent MDDS version.

INTEL ACCEPTS NO DUTY TO NOTIFY USERS ABOUT CHANGES TO AN MDDS. INTEL IS NOT LIABLE FOR ANY DAMAGES, DIRECT OR INDIRECT, CONSEQUENTIAL OR OTHERWISE, THAT THE READER MIGHT INCUR AS A RESULT OF IGNORING THIS WARNING, OR THAT ANY THIRD PARTY MIGHT SUFFER AS A RESULT OF THE READER'S IGNORING THIS WARNING.



May 2006

To whom it may concern:

Intel manufactures a wide range of products, from microprocessors, through embedded controllers, up to complete OEM systems. A large number of subassemblies and components are purchased from other manufacturers. Intel goes to great lengths to make sure all our products meet applicable legal requirements, and we continually monitor changes in those requirements. We have surveyed our products, and to the best of our knowledge, Intel products are in compliance with all applicable national and international laws and regulations, including those that may restrict the materials content of certain products.

Intel is frequently asked by its customer base about the presence of certain materials in its products. To the best of our knowledge, the following materials are not present in Intel products and are restricted by Intel's Environmental Product Content Specification for Suppliers and Outsourced Manufacturers (<http://supplier.intel.com/ehs/environmental.htm>):

- Asbestos
- Certain Azo Colorants
- Cadmium compounds (except as a plastic stabilizer where content must be < 100 ppm)
- Mercury compounds
- Ozone Depleting Substances (ODS)
- Polybrominated biphenyls and their ethers (PBB, PBDE)
- Polychlorinated biphenyls and terphenyls (PCB, PCT)
- Polychlorinated naphthalenes
- Short-chained chlorinated paraffins
- Tributyl tin (TBT) and Triphenyl tin (TPT)
- Tributyl tin oxide (TBTO)
- Hexavalent chromium

The information provided regarding the material content of our products is true and correct to the best of our knowledge and Intel has systems and due diligence processes in place to determine the content of our products and ensure compliance with all applicable laws and regulations. Furthermore, where Intel has identified products as RoHS compliant in the attached Material Declaration Data Sheets (MDDS), Intel defines RoHS compliance as Lead and other banned materials in the EU RoHS directive are either (1) below all applicable substance thresholds as proposed by the EU or (2) an approved exemption applies. (Note: RoHS implementing details are not fully defined and may change.)

Sincerely,

A handwritten signature in cursive script that reads "Linda Young".

Linda Young
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Material Declaration Data Sheet

CPGA
 Ceramic Pin Grid Array
 PinCount: 168
 Pb Free Product: No

Product Weight (grams): 24.1
 Manufacturer: Intel Corporation
 Revision Date: 4/7/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	Additive	Ceramic package	1390

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Epoxy encapsulation material	1840
Nickel	Plating	Substrate	16400

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: CPGA 168. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.
2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

CPGA
 Ceramic Pin Grid Array
 PinCount: 262
 Pb Free Product: No

Product Weight (grams): 29.6
 Manufacturer: Intel Corporation
 Revision Date: 4/7/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds			

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Nickel	Plating	Substrate	29000

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: CPGA 262. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.
2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

CPGA
 Ceramic Pin Grid Array
 PinCount: 68
 Pb Free Product: No

Product Weight (grams): 10.1
 Manufacturer: Intel Corporation
 Revision Date: 4/7/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds			

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Nickel	Plating	Substrate	57700

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: CPGA 68. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.
2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

INT-MPGA
 Interposer with Micro Pin Grid Array
 PinCount: 603
 Pb Free Product: No

Product Weight (grams): 58.9
 Manufacturer: Intel Corporation
 Revision Date: 9/19/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission as well as network management for telecommunications. The applicability of this exemption depends on use of the part in one of the listed exempt applications.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds			

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Epoxy encapsulation material	5480
Nickel	Plating	Substrate	8790

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: INT-MPGA 603. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.
2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

INT-PGA
 Interposer with Pin Grid Array
 PinCount: 603
 Pb Free Product: No

Product Weight (grams): 38.9
 Manufacturer: Intel Corporation
 Revision Date: 5/3/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission as well as network management for telecommunications. The applicability of this exemption depends on use of the part in one of the listed exempt applications.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	Electrical interconnect	Solder	19596

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Epoxy encapsulation material	5182
Nickel	Plating	Package Pins	26230

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: INT-PGA 603, Product Code Name YF80528KC0290K. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.
2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

INT-PGA
 Interposer with Pin Grid Array
 PinCount: 611
 Pb Free Product: No

Product Weight (grams): 58.2
 Manufacturer: Intel Corporation
 Revision Date: 11/3/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission as well as network management for telecommunications. The applicability of this exemption depends on use of the part in one of the listed exempt applications.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	Electrical interconnect	Solder	15000

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Epoxy encapsulation material	10800
Nickel	Plating	Package Pins	7520

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: INT-PGA 611, Product Code Name RN80543KC9006M. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.
2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCPGA
 Flip Chip Pin Grid Array
 PinCount: 478
 Pb Free Product: No

Product Weight (grams): 4.5
 Manufacturer: Intel Corporation
 Revision Date: 4/7/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	Electrical interconnect, C4 die bump, substrate solder	FLI, Solder ball	5066

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Antimony	Electrical interconnect	Solder	1552
Brominated Flame Retardant	Flame retardant	Epoxy encapsulation	5355
Nickel	Plating	Substrate / SLI	27229

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCPGA 478. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.
2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCPGA2
 Flip Chip Pin Grid Array2
 PinCount: 604
 Pb Free Product: No

Product Weight (grams): 20.8
 Manufacturer: Intel Corporation
 Revision Date: 12/7/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	2350

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Epoxy encapsulation material	2710
Nickel	Plating	Substrate / SLI	7330

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCPGA2 604, Product Code Name RK80532EE056512 SL74T. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

INTEL ACCEPTS NO DUTY TO UPDATE THIS MDDS OR TO NOTIFY USERS OF THIS MDDS OF UPDATES OR CHANGES TO THIS MDDS. INTEL SHALL NOT BE LIABLE FOR ANY DAMAGES, DIRECT OR INDIRECT, CONSEQUENTIAL OR OTHERWISE, SUFFERED BY USERS OR THIRD PARTIES AS A RESULT OF THE USERS RELIANCE ON INFORMATION IN THIS MDDS THAT HAS BEEN UPDATED OR CHANGED.



Material Declaration Data Sheet

FCPGA4
 Flip Chip Pin Grid Array4
 PinCount: 604
 Pb Free Product: No

Product Weight (grams): 22.1
 Manufacturer: Intel Corporation
 Revision Date: 8/30/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission as well as network management for telecommunications. The applicability of this exemption depends on use of the part in one of the listed exempt applications.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/die-side components	FLI / die-side components and solder paste	2570

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Epoxy encapsulation material	15700
Nickel	Plating	Substrate / SLI	15200

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCPGA4 604, Product Code Name RK80546KG0961M. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.
2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCPGA4
 Flip Chip Pin Grid Array4
 PinCount: 604
 Pb Free Product: No

Product Weight (grams): 34.7
 Manufacturer: Intel Corporation
 Revision Date: 11/1/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission as well as network management for telecommunications. The applicability of this exemption depends on use of the part in one of the listed exempt applications.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/die-side components	FLI / die-side components and solder paste	2640

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Epoxy encapsulation material	3650
Nickel	Plating	Substrate / SLI	7270

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCPGA4 604, Product Code Name 80546KF0808M. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.
2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCPGA4
 Flip Chip Pin Grid Array4
 PinCount: 604
 Pb Free Product: No

Product Weight (grams): 22.4
 Manufacturer: Intel Corporation
 Revision Date: 12/7/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission as well as network management for telecommunications. The applicability of this exemption depends on use of the part in one of the listed exempt applications.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder/die-side components	FLI / die-side components and solder paste	1520

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Epoxy encapsulation material	3160
Nickel	Plating	Substrate / SLI	12400

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCPGA4 604, Product Code Name RK80546KG1042MM. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.
2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

PPGA
 Plastic Pin Grid Array
 PinCount: 296
 Pb Free Product: No

Product Weight (grams): 19.4
 Manufacturer: Intel Corporation
 Revision Date: 4/7/2005

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * This part contains RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	Electrical interconnect	Chip Join Solder	3235

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Epoxy encapsulation material	17790
Nickel	Plating	Substrate	61850

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: PPGA 296, Product Code Name FV8050366200. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.
2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

CPGA
 Ceramic Pin Grid Array
 PinCount: 132
 Pb Free Product: Yes

Product Weight (grams): 15.8
 Manufacturer: Intel Corporation
 Revision Date: 4/24/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

- * The part does not contain RoHS restricted substances per the definition above.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds			

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Epoxy encapsulation material	1030
Nickel	Plating	Substrate	29500

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: CPGA 132, Product Code Name A80386DX16 (37mm x 37mm). Individual unit test results may vary due to differences in production and/or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.
2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCPGA
 Flip Chip Pin Grid Array
 PinCount: 370
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 16.0
 Manufacturer: Intel Corporation
 Revision Date: 4/27/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds			

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame Retardant	Epoxy Encapsulation Material	9673
Nickel	Plating	Substate / SLI	28880

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCPGA 370, Product Code Name RK80533 (49.5mm x 49.5mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

INTEL ACCEPTS NO DUTY TO UPDATE THIS MDDS OR TO NOTIFY USERS OF THIS MDDS OF UPDATES OR CHANGES TO THIS MDDS. INTEL SHALL NOT BE LIABLE FOR ANY DAMAGES, DIRECT OR INDIRECT, CONSEQUENTIAL OR OTHERWISE, SUFFERED BY USERS OR THIRD PARTIES AS A RESULT OF THE USERS RELIANCE ON INFORMATION IN THIS MDDS THAT HAS BEEN UPDATED OR CHANGED.



Material Declaration Data Sheet

FCPGA2
 Flip Chip Pin Grid Array2
 PinCount: 478
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 19.0
 Manufacturer: Intel Corporation
 Revision Date: 4/26/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	2370

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Nickel	Plating	Substrate	41527

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCPGA2 478, Product Code Name RK80531PC (35mm x 35mm w IHS). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCPGA2
 Flip Chip Pin Grid Array2
 PinCount: 478
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 4.8
 Manufacturer: Intel Corporation
 Revision Date: 4/25/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	3160

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Antimony			1380
Brominated Flame Retardant	Flame Retardant	Substrate	12800
Nickel	Plating	Substrate	15500

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCPGA4 478, Product Code Name RH80535 (35mm x 35mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCPGA2
 Flip Chip Pin Grid Array2
 PinCount: 604
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 21.0
 Manufacturer: Intel Corporation
 Revision Date: 4/26/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	C4 die bump/substrate solder	FLI	2140

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame Retardant	Substrate	5650
Nickel	Plating	Substrate	15000

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCPGA2 604, Product Code Name NE80532KE (42.5mm x 42.5mm w IHS). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCPGA4
 Flip Chip Pin Grid Array4
 PinCount: 478
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 19.7
 Manufacturer: Intel Corporation
 Revision Date: 4/30/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds			

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Epoxy encapsulation material	4730
Nickel	Plating	Substrate / SLI	8050

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCPGA4 478, Product Code Name RK80546; NE80546 (35mm x 35mm w IHS). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCPGA4
 Flip Chip Pin Grid Array4
 PinCount: 478
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 4.8
 Manufacturer: Intel Corporation
 Revision Date: 1/26/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	Electrical Interconnect, C4 Die Bump / substrate solder	FLI	3160

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Antimony	Electrical interconnect - LSC / PIN	Solder	1380
Brominated Flame Retardant	Flame retardant	Epoxy encapsulation material	12800
Nickel	Plating	Substrate / SLI	15500

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCPGA4 478, Product Code Name RH80536GC0332M. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.
2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCPGA4
 Flip Chip Pin Grid Array4
 PinCount: 604
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 35.6
 Manufacturer: Intel Corporation
 Revision Date: 4/19/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	Electrical Interconnect, C4 Die Bump / substrate solder	FLI	1400

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Epoxy encapsulation material	3470
Nickel	Plating	Substrate / SLI	9790

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCPGA4 604, Product Code Name NE80560KG0804MH. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.
2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCPGA4
 Flip Chip Pin Grid Array4
 PinCount: 604
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 22.5
 Manufacturer: Intel Corporation
 Revision Date: 4/19/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds			

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Epoxy encapsulation material	5810
Nickel	Plating	Substrate / SLI	5620

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCPGA4 604, Product Code Name NE80546KG1042M. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCPGA4
 Flip Chip Pin Grid Array4
 PinCount: 604
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 35.5
 Manufacturer: Intel Corporation
 Revision Date: 4/19/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	Electrical Interconnect, C4 Die Bump / substrate solder	FLI	1320

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant	Flame retardant	Epoxy encapsulation material	10400
Nickel	Plating	Substrate / SLI	5250

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCPGA4 604, Product Code Name NE80551KG0724M. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.
2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCPGA4
 Flip Chip Pin Grid Array4
 PinCount: 611
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 91.5
 Manufacturer: Intel Corporation
 Revision Date: 4/19/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds	Electrical Interconnect, C4 Die Bump / substrate solder	FLI	2500

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Nickel	Plating	Substrate / SLI	28800

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCPGA4 611, Product Code Name NE80549K. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCPGA6
 Flip Chip Pin Grid Array6
 PinCount: 478
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 6.3
 Manufacturer: Intel Corporation
 Revision Date: 4/20/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds			

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Antimony			1410
Brominated Flame Retardant			5200
Nickel			14100

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCPGA6 478, Product Code Name LF80538K. Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.
2. This data sheet is based on the product specified and other packages are assumed to be similar.
3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.
4. Material mass can be estimated by multiplying concentration (ppm) by product weight.
5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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Material Declaration Data Sheet

FCPGA6
 Flip Chip Pin Grid Array6
 PinCount: 478
 Pb Free Product: Yes-Second Level Interconnect

Product Weight (grams): 6.4
 Manufacturer: Intel Corporation
 Revision Date: 4/30/2006

Restrictions on Hazardous Substances (RoHS) Compliance

RoHS Definition

- * Quantity limit of 0.1% by mass (1000 PPM) of homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE)
- * Quantity limit of 0.01% by mass (100 PPM) of homogeneous material for: Cadmium

Intel understands RoHS requires: Lead and other materials banned in RoHS Directive are either (1) below all applicable substance thresholds as defined by the EU or (2) an approved/pending exemption applies. (Note: RoHS implementation details are not fully defined and may change.)

RoHS Declaration

* The part does not contain RoHS restricted substances per the definition above except lead, which is used under the following exemption: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.

Where the part is declared to meet RoHS requirements, it has been verified to be in conformance with 2002/95/EC as we currently understand the requirements. Intel has systems in place to verify conformance with all applicable environmental requirements and to the best of our knowledge the information is true and correct.

LEVEL A MATERIALS AND SUBSTANCES

Materials from Annex A of the EIA/EICTA/JGPSSI Material Composition Declaration Guide and listed in the table below are not contained in this product in quantities above the threshold level for these materials as stated in the EIA/EICTA/JGPSSI Material Composition Declaration Guide, nor intentionally added to this product.

Asbestos	Mercury / Mercury Compounds	Polychlorinated Naphthalenes
Azo colorants	Ozone Depleting Substances	Radioactive Substances
Cadmium / Cadmium Compounds	Polybrominated Biphenyls (PBBs)	Shortchain Chlorinated Paraffins
Hexavalent Chromium	Polybrominated Diphenylethers (PBDEs)	Tributyl Tin (TBT) and Triphenyl Tin (TPT)
Hexavalent Chromium Compounds	Polychlorinated Biphenyls (PCBs)	Tributyl Tin Oxide (TBTO)

If this product contains lead (Pb) above the threshold limit of 1000 ppm, the concentration, location and use for this product are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Lead/Lead Compounds			

LEVEL B MATERIALS AND SUBSTANCES

Antimony/Antimony Compounds	Bismuth/Bismuth Compounds	Phthalates
Arsenic/Arsenic Compounds	Brominated Flame Retardants	Selenium/Selenium Compounds
Beryllium/Beryllium Compounds	Nickel/Nickel Compounds	Vinyl Chloride Polymer (PVC)

If this product contains materials listed in Annex B of the EIA/EICTA/JGPSSI Material Composition Declaration Guide above the threshold level of 1000 ppm, those materials/substances are listed below.

	Description of Use	Location in Product	Material Concentration (ppm)
Brominated Flame Retardant			16900
Nickel			17100

COMMENTS

1. The data on Level A and B materials and substances are based on analytical testing of the following package: FCPGA6 478, Product Code Name LF80539GF (35mm x 35mm). Individual unit test results may vary due to differences in production and /or sensitivities of analytical testing methods. Data shown on this MDDS reflect part-level testing intended to validate Intel's RoHS compliance systems. Intel's certification of RoHS compliance at the homogenous material level is based on Supplier Declarations of Conformance.

2. This data sheet is based on the product specified and other packages are assumed to be similar.

3. Data in parts per million (ppm) can be used to estimate content for other packages assumed to be similar.

4. Material mass can be estimated by multiplying concentration (ppm) by product weight.

5. The remainder of this package consists of non-reportable metals (e.g., tin, iron, etc), epoxy resin and other non-metal materials.

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